



## Full wwPDB EM Validation Report ⓘ

Apr 15, 2024 – 04:32 PM JST

PDB ID : 8J4Z  
EMDB ID : EMD-35980  
Title : Human 3-methylcrotonyl-CoA carboxylase in BCCP-CTS state with substrate  
Authors : Liu, D.S.; Su, J.Y.  
Deposited on : 2023-04-21  
Resolution : 2.73 Å (reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

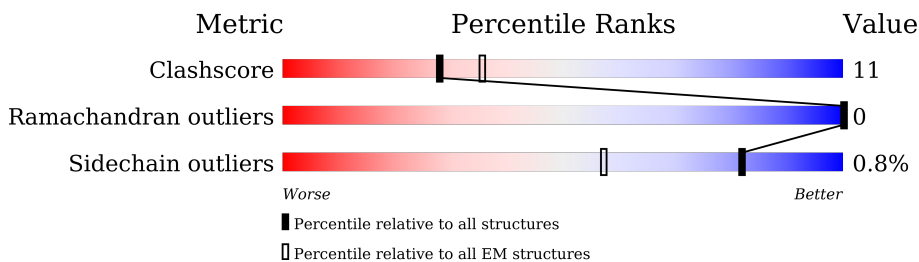
EMDB validation analysis : 0.0.1.dev70  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*



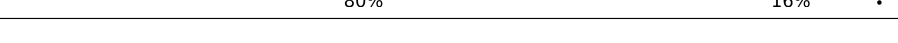



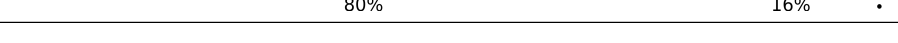

The reported resolution of this entry is 2.73 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	563	
1	C	563	
1	F	563	
1	H	563	
1	J	563	
1	K	563	
2	B	725	
2	D	725	

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Mol	Chain	Length	Quality of chain
2	E	725	
2	G	725	
2	I	725	
2	L	725	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	BTI	A	800	-	-	X	-
3	BTI	C	800	-	-	X	-
3	BTI	F	802	-	-	X	-
3	BTI	H	802	-	-	X	-
3	BTI	J	800	-	-	X	-
3	BTI	K	802	-	-	X	-

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 53664 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

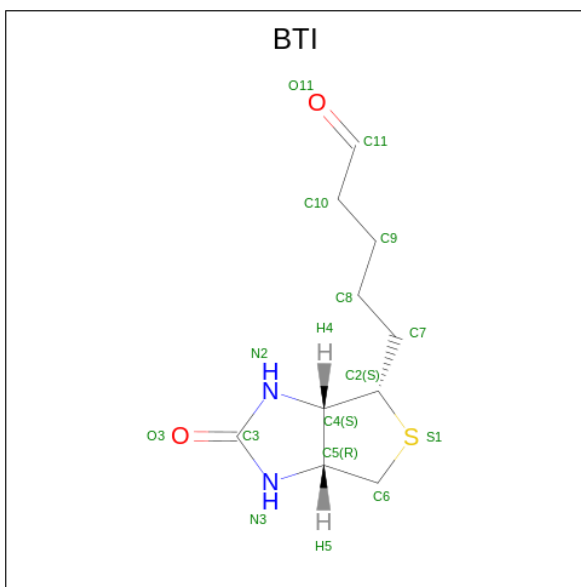
- Molecule 1 is a protein called Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	J	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		
1	A	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		
1	C	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		
1	F	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		
1	H	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		
1	K	541	Total	C	N	O	S	0	0
			4154	2633	726	776	19		

- Molecule 2 is a protein called Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial.

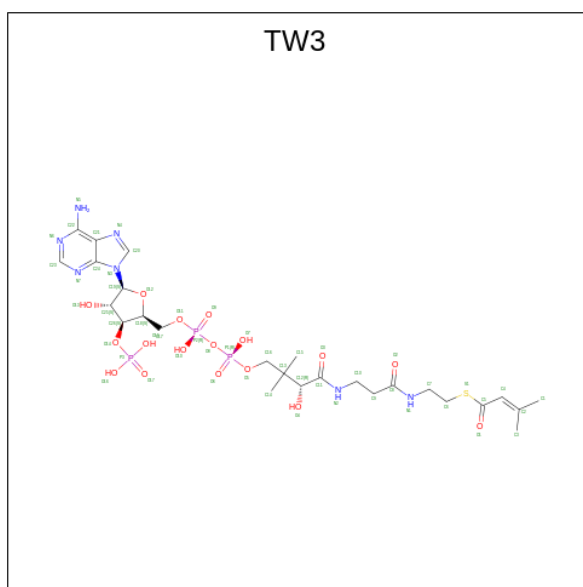
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		
2	B	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		
2	D	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		
2	G	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		
2	I	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		
2	L	610	Total	C	N	O	S	0	0
			4721	2974	822	895	30		

- Molecule 3 is 5-(HEXAHYDRO-2-OXO-1H-THIENO[3,4-D]IMIDAZOL-6-YL)PENTANAL (three-letter code: BTI) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>2</sub>S).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
3	J	1	Total	C	N	O	S	0
			15	10	2	2	1	
3	A	1	Total	C	N	O	S	0
			15	10	2	2	1	
3	C	1	Total	C	N	O	S	0
			15	10	2	2	1	
3	F	1	Total	C	N	O	S	0
			15	10	2	2	1	
3	H	1	Total	C	N	O	S	0
			15	10	2	2	1	
3	K	1	Total	C	N	O	S	0
			15	10	2	2	1	

- Molecule 4 is {S}-[2-[3-[[[(2 {R})-4-[[[(2 {S},3 {S},4 {S},5 {S})-5-(6-aminopurin-9-yl)-4-oxidanyl-3-phosphonooxy-oxolan-2-yl]methoxy-oxidanyl-phosphoryl]oxy-oxidanyl-phosphoryl]oxy-3,3-dimethyl-2-oxidanyl-butanyl]amino]propanoylamino]ethyl] 3-methylbut-2-enethioate (three-letter code: TW3) (formula: C<sub>26</sub>H<sub>42</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub>S).

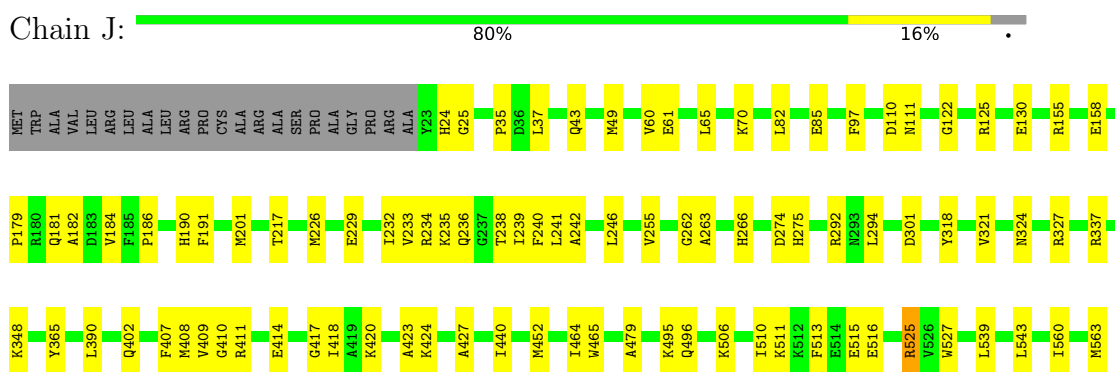


Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
4	J	1	Total 54	26	7	17	3	1	0
4	A	1	Total 54	26	7	17	3	1	0
4	C	1	Total 54	26	7	17	3	1	0
4	F	1	Total 54	26	7	17	3	1	0
4	H	1	Total 54	26	7	17	3	1	0
4	K	1	Total 54	26	7	17	3	1	0

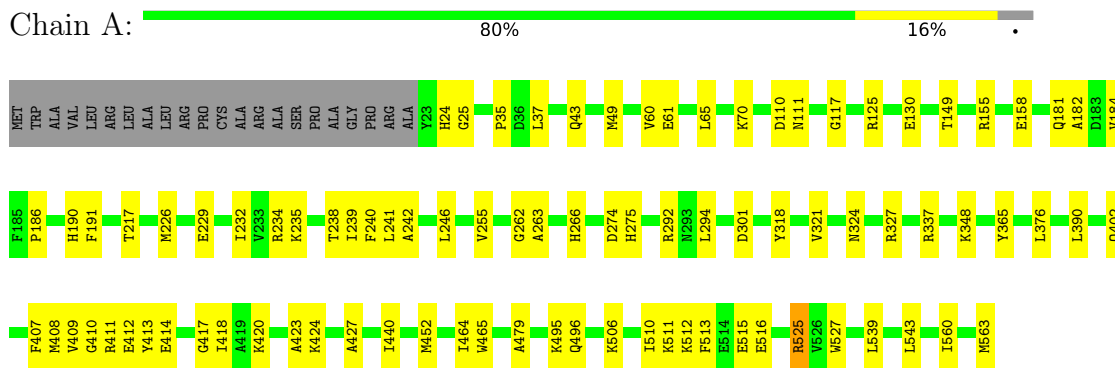
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

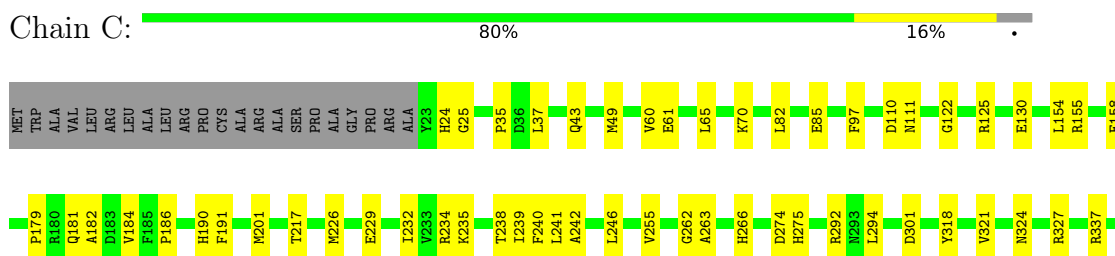
- Molecule 1: Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial



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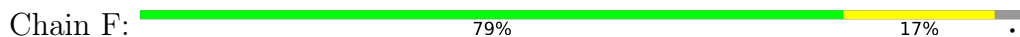


- Molecule 1: Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial

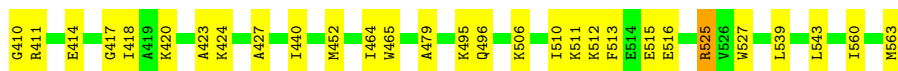
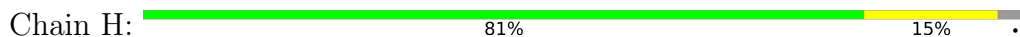




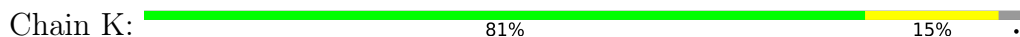
• Molecule 1: Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial



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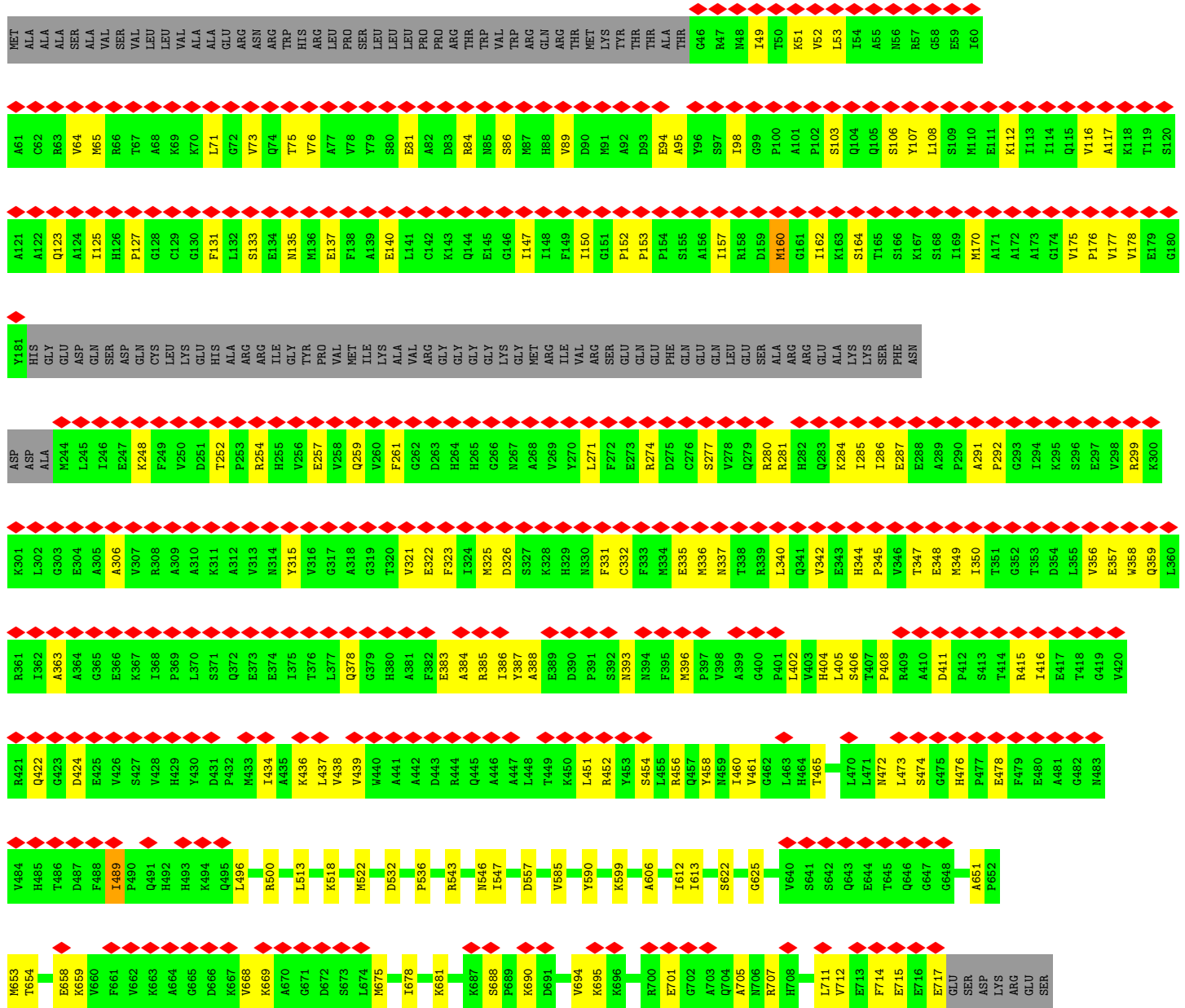
• Molecule 1: Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial



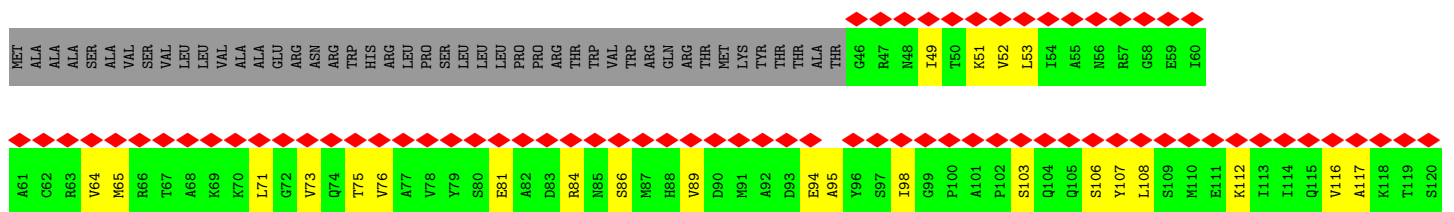
• Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial

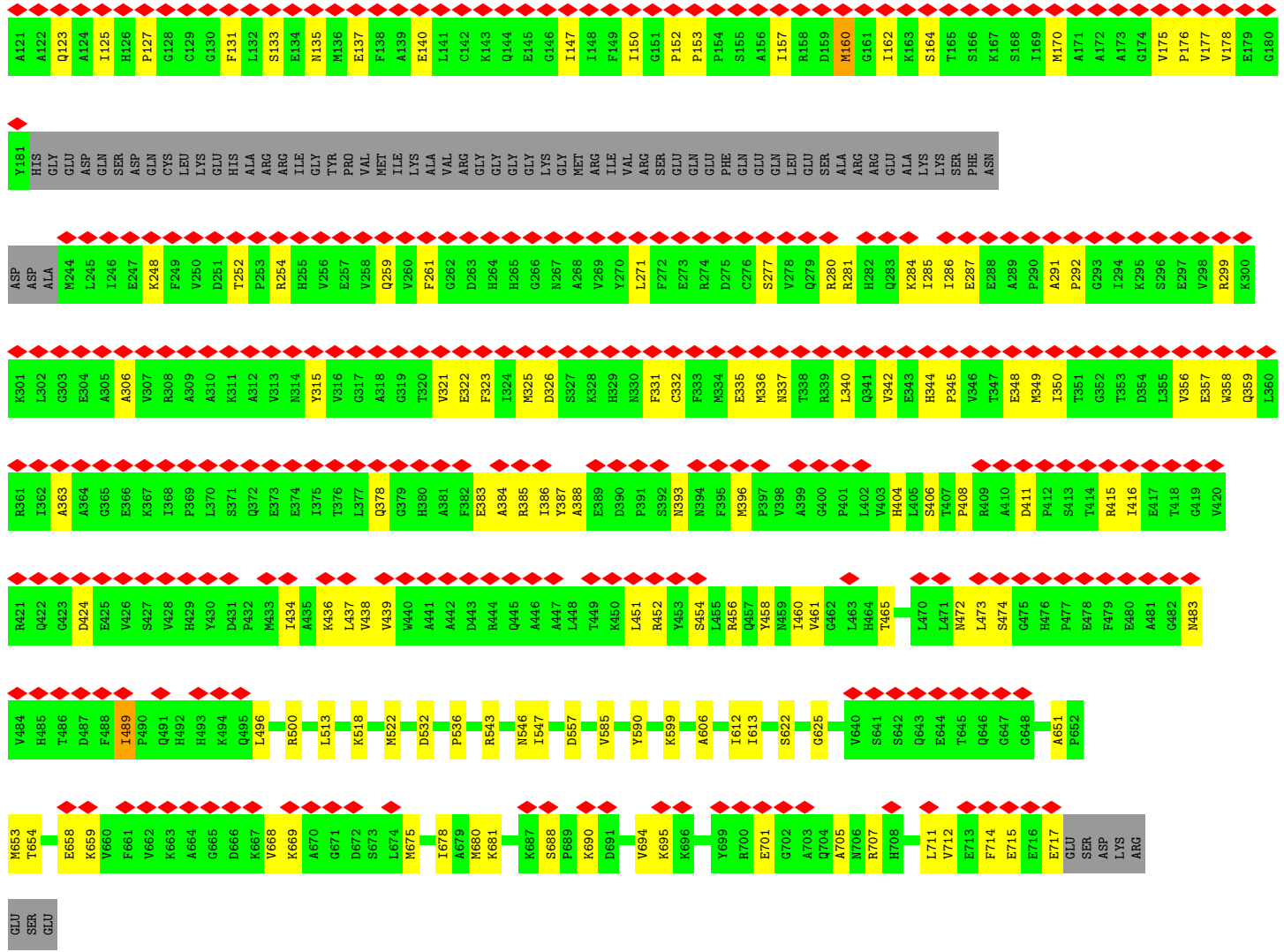




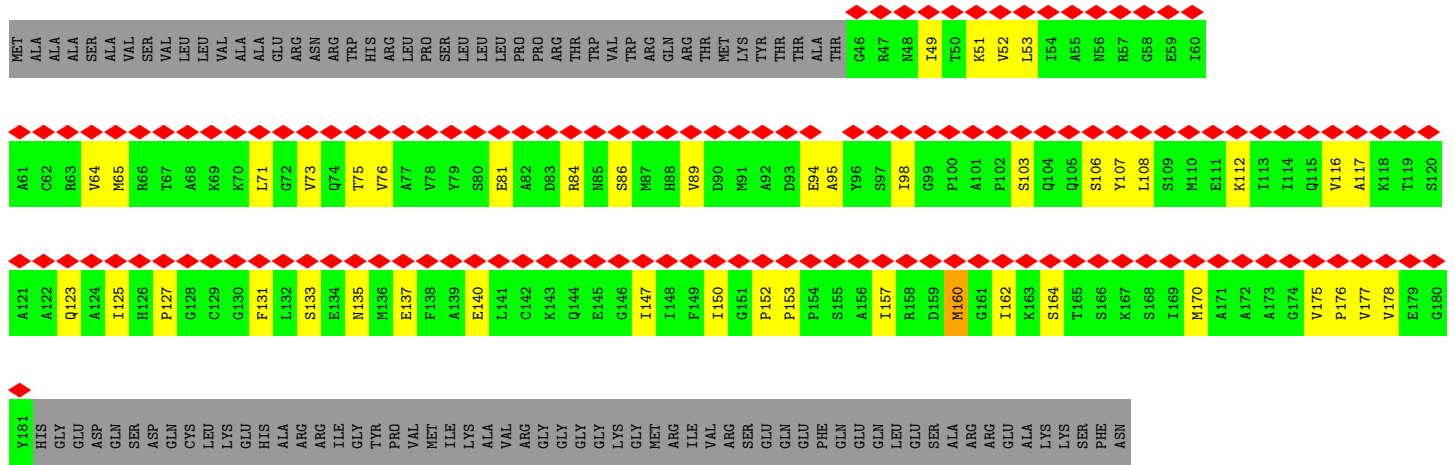


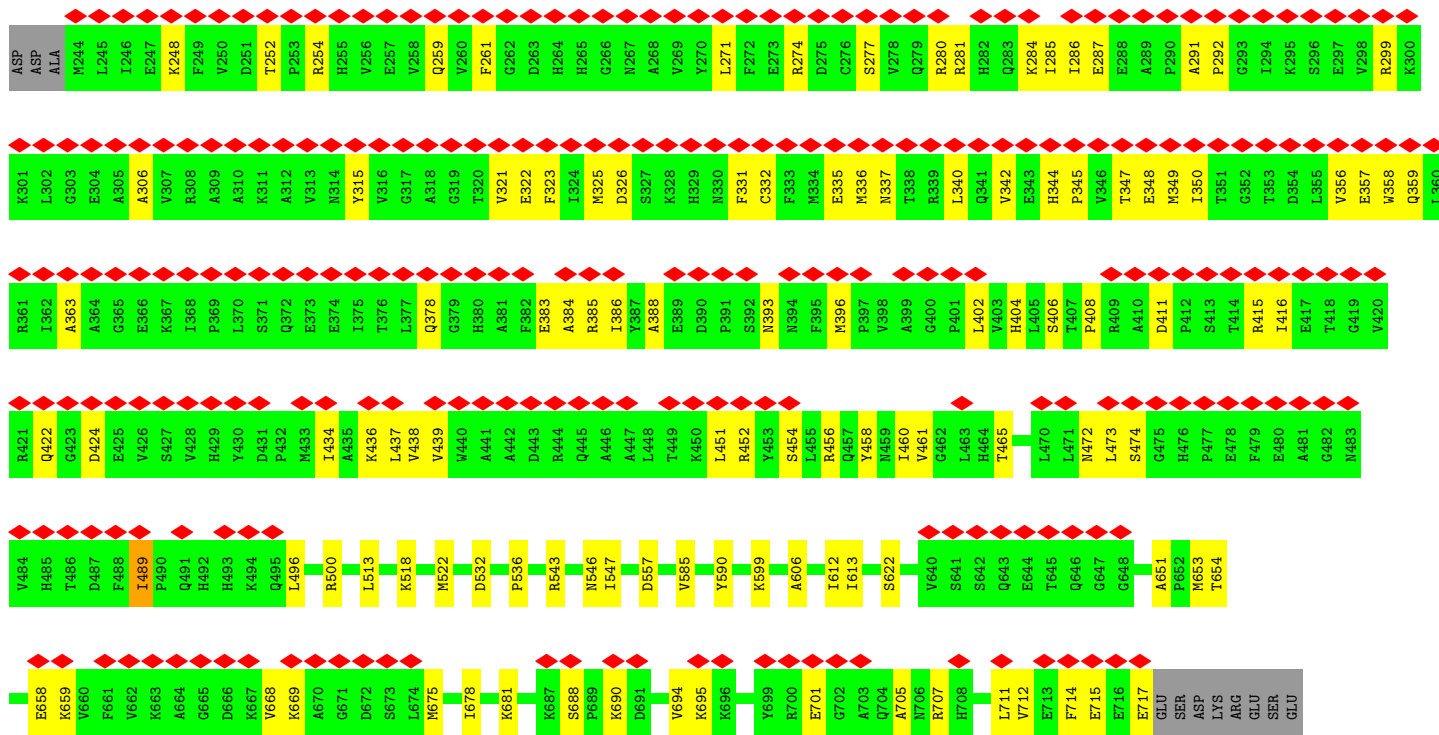
● Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial



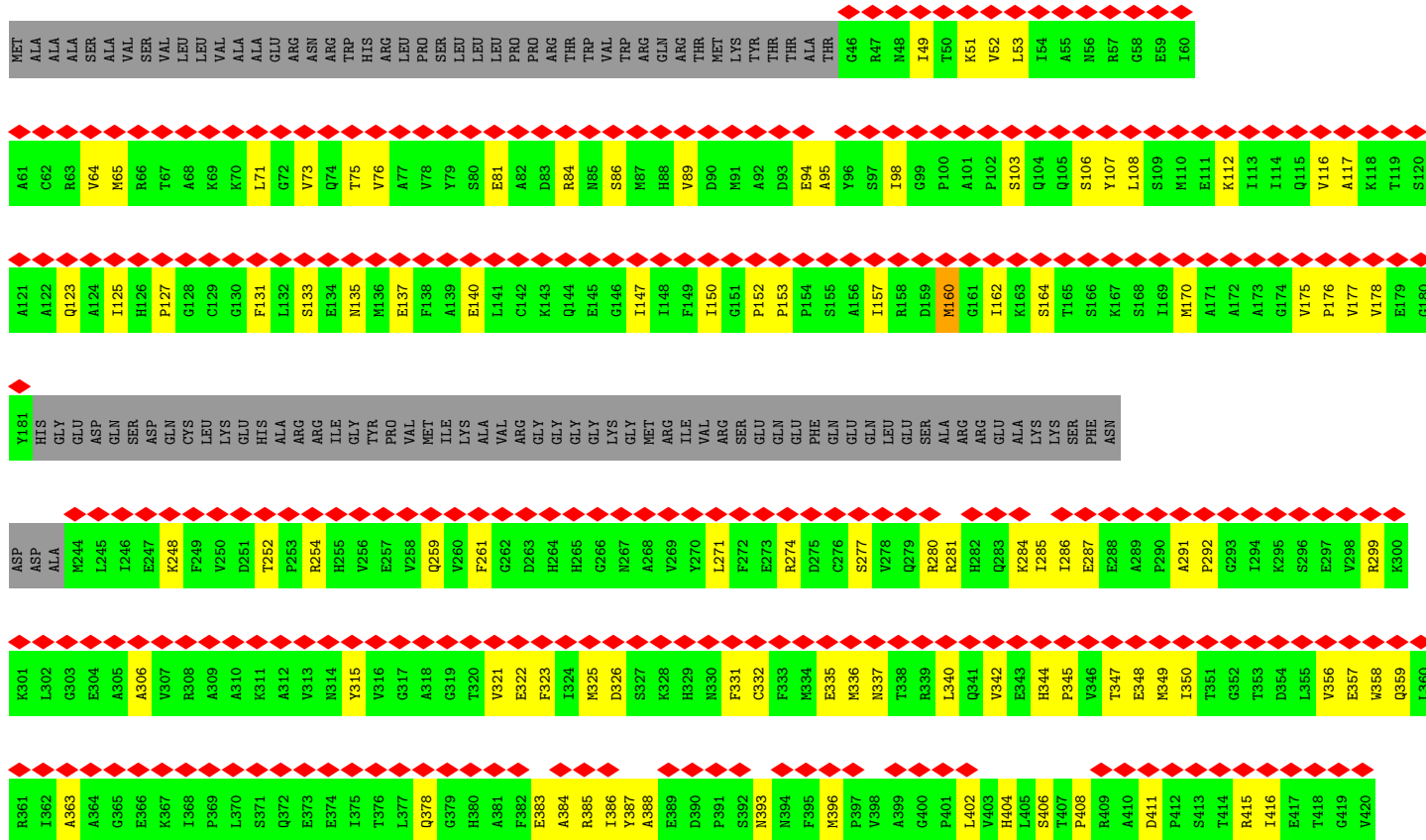


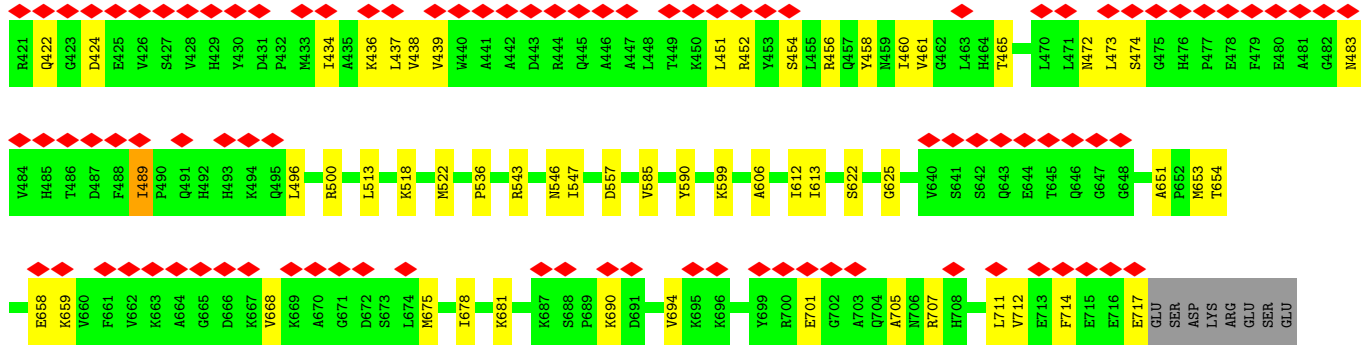
● Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial



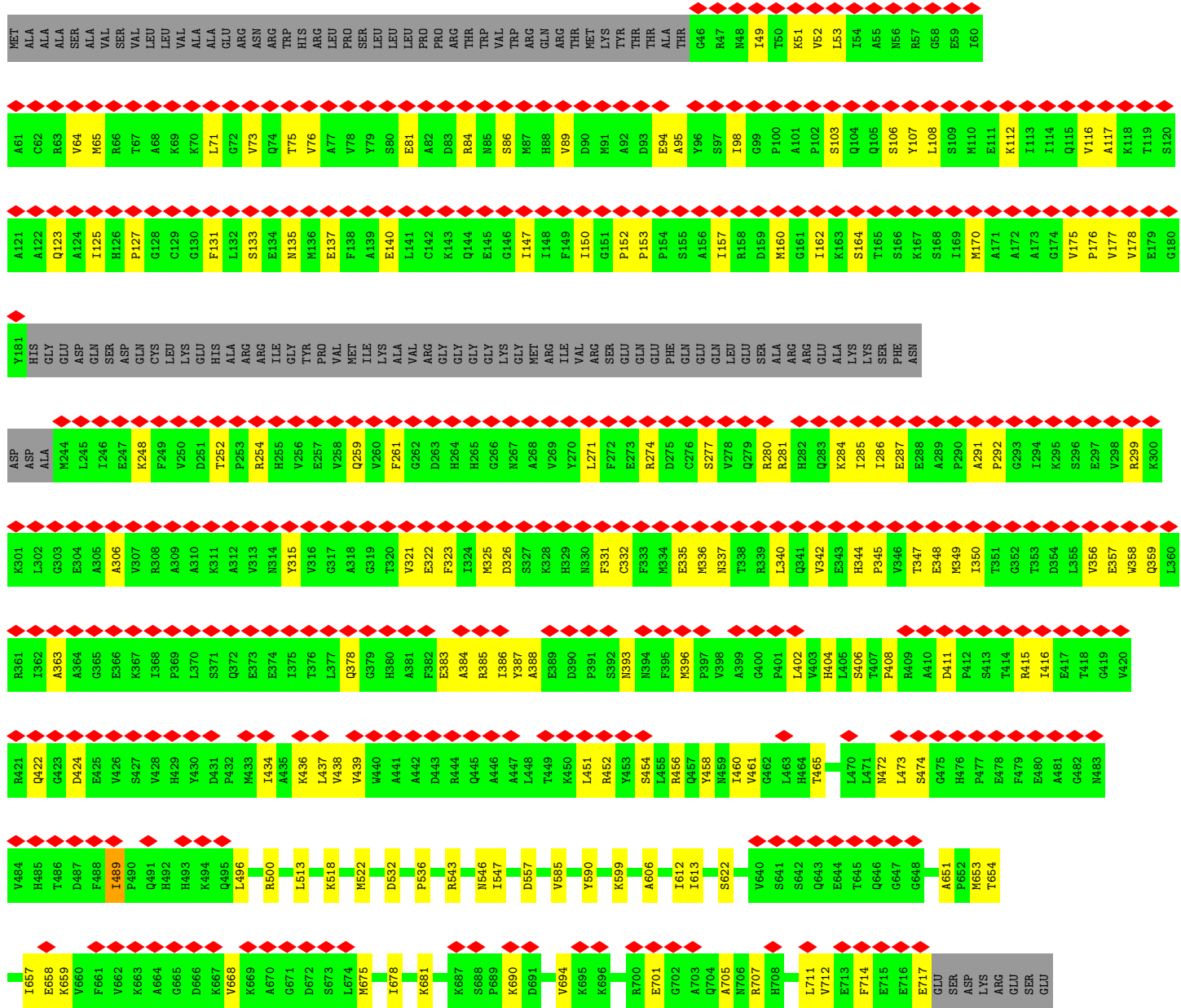


● Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial





● Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial



• Molecule 2: Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial



MET	ALA	ALA	ALA	SER	ALA	VAL	SER	VAL	VAL	LEU	LEU	VAL	ALA	ALA	GLU	ARG	ARG	ASN	TRP	HIS	ARG	PRO	LEU	SER	LEU	LEU	LEU	LEU	LEU	PRO	ARG	GLY	THR	THR	MET	LYS	TYR	THR	THR	THR	ALA	THR	G46	R47	N48	I49	T50	K51	V52	L53	I54	A55	N56	R57	G58	E59	I60		
A61	C62	R63	V64	M65	R66	T67	A68	K69	K70	L71	G72	V73	Q74	T75	V76	A77	V78	Y79	S80	E81	E82	D83	R84	N85	S86	M87	H88	V89	D90	M91	A92	D93	E94	A95	Y96	S97	I98	G99	P100	A101	P102	S103	Q104	Q105	S106	Y107	L108	S109	M110	E111	K112	I113	I114	Q115	V116	A117	K118	T119	S120
A121	A122	Q123	A124	I125	H126	P127	G128	C129	G130	F131	L132	S133	E134	M135	M136	E137	F138	A139	E140	L141	C142	K143	Q144	E145	G146	I147	I148	F149	I150	G151	P152	P153	P154	S155	A156	I157	R158	D159	M160	G161	I162	K163	T165	S166	K167	S168	I169	M170	A171	A172	A173	G174	V175	P176	V177	V178	E179	G180	
Y181	HIS	GLY	GLU	ASP	GLN	SER	ASP	GLN	CYS	LEU	LYS	GLU	ALA	ALA	ARG	ILE	TYR	PRO	VAL	MET	ILE	LYS	ALA	VAL	VAL	ARG	GLY	GLY	LYS	GLY	MET	ARG	ILE	VAL	ARG	SER	GLU	GLU	GLU	PHE	GLN	GLU	GLU	ALA	ARG	ARG	GLU	ALA	LYS	SER	PHE	ASN							
ASP	ASP	ALA	M244	L245	I246	E247	K248	F249	V250	D251	T252	P253	R254	H255	V256	E257	V258	Q259	V260	F261	G262	D263	H264	H265	G266	N267	A268	V269	Y270	L271	F272	E273	R274	D275	C276	S277	V278	Q279	R280	R281	H282	Q283	K284	I285	I286	E287	E288	A289	P290	A291	P292	G293	I294	K295	S296	E297	V298	R299	K300
K301	L302	G303	E304	A305	A306	V307	R308	A309	A310	K311	A312	V313	N314	Y315	V316	G317	A318	G319	T320	V321	E322	F323	I324	M325	D326	S327	K328	H329	N330	F331	C332	F333	M334	E335	M336	N337	T338	R339	L340	Q341	V342	E343	H344	P345	V346	T347	E348	M349	I350	T351	G352	T353	D354	L355	V356	E357	K358	Q359	L360
R361	I362	A363	A364	G365	E366	K367	I368	P369	L370	S371	Q372	E373	E374	E375	T376	L377	Q378	G379	H380	A381	F382	E383	A384	R385	I386	Y387	A388	E389	D390	P391	S392	N393	N394	F395	M396	P397	V398	A399	G400	P401	L402	Y403	H404	L405	S406	T407	P408	R409	A410	D411	P412	S413	T414	R415	I416	E417	T418	G419	V420
R421	Q422	G423	D424	E425	V426	S427	V428	H429	Y430	D431	P432	H433	L434	A435	K436	L437	V438	V439	V440	A441	A442	D443	R444	Q445	A446	A447	L448	T449	K450	L451	R452	Y453	S454	L455	R456	Y458	H459	L460	V461	G462	L463	H464	T465	L470	L471	M472	L473	S474	G475	H476	P477	E478	F479	E480	A481	G482	H483		
V484	H485	T486	D487	F488	I489	P490	Q491	H492	H493	K494	Q495	L496	R500	L513	K518	M522	D532	P536	R543	N546	I547	D557	V585	Y590	K599	A606	L612	L613	S622	G625	L637	V640	S641	S642	Q643	E644	T645	Q646	G647	G648																			
A651	P652	N653	T654	E656	K659	V660	F661	V662	K663	A664	G665	D666	K667	V668	K669	A670	G671	D672	S673	L674	M675	L678	K681	K687	S688	P689	K690	D691	V694	K695	K696	V699	R700	E701	G702	A703	T704	A705	H706	R707	H708	L711	V712	E713	F714	E715	E716	E717	GLU	SER	ASP	LYS							
ARG	GLU	SER	GLU																																																								

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	273383	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.915	Depositor
Minimum map value	-0.316	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.033	Depositor
Recommended contour level	0.092	Depositor
Map size ( $\text{\AA}$ )	349.2, 349.2, 349.2	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.97, 0.97, 0.97	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: TW3, BTI

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.28	0/4239	0.48	0/5731
1	C	0.27	0/4239	0.48	0/5731
1	F	0.27	0/4239	0.48	0/5731
1	H	0.27	0/4239	0.48	0/5731
1	J	0.27	0/4239	0.48	0/5731
1	K	0.27	0/4239	0.48	0/5731
2	B	0.26	0/4810	0.49	0/6498
2	D	0.26	0/4810	0.49	0/6498
2	E	0.26	0/4810	0.49	0/6498
2	G	0.26	0/4810	0.49	0/6498
2	I	0.26	0/4810	0.49	0/6498
2	L	0.26	0/4810	0.49	0/6498
All	All	0.27	0/54294	0.49	0/73374

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4154	0	4130	102	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	4154	0	4130	113	0
1	F	4154	0	4130	110	0
1	H	4154	0	4130	99	0
1	J	4154	0	4130	103	0
1	K	4154	0	4130	101	0
2	B	4721	0	4732	114	0
2	D	4721	0	4732	119	0
2	E	4721	0	4732	123	0
2	G	4721	0	4732	119	0
2	I	4721	0	4732	117	0
2	L	4721	0	4732	116	0
3	A	15	0	16	14	0
3	C	15	0	16	15	0
3	F	15	0	16	17	0
3	H	15	0	16	16	0
3	J	15	0	16	16	0
3	K	15	0	16	13	0
4	A	54	0	0	11	0
4	C	54	0	0	11	0
4	F	54	0	0	11	0
4	H	54	0	0	11	0
4	J	54	0	0	11	0
4	K	54	0	0	11	0
All	All	53664	0	53268	1138	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 11.

All (1138) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:802:BTI:C11	2:G:681:LYS:NZ	1.80	1.45
3:H:802:BTI:H11	2:I:681:LYS:NZ	1.14	1.45
3:J:800:BTI:C11	2:E:681:LYS:NZ	1.80	1.45
3:K:802:BTI:C11	2:L:681:LYS:NZ	1.80	1.45
3:C:800:BTI:C11	2:D:681:LYS:NZ	1.80	1.43
3:K:802:BTI:C11	2:L:681:LYS:HZ2	1.30	1.43
3:A:800:BTI:C11	2:B:681:LYS:NZ	1.80	1.43
3:C:800:BTI:H11	2:D:681:LYS:NZ	1.14	1.43
3:A:800:BTI:H11	2:B:681:LYS:NZ	1.14	1.42
3:H:802:BTI:C11	2:I:681:LYS:NZ	1.80	1.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:802:BTI:H11	2:G:681:LYS:NZ	1.14	1.39
3:J:800:BTI:H11	2:E:681:LYS:NZ	1.14	1.38
3:K:802:BTI:H11	2:L:681:LYS:NZ	1.14	1.38
3:A:800:BTI:C10	2:B:681:LYS:HZ2	1.38	1.32
3:H:802:BTI:C11	2:I:681:LYS:HZ2	1.34	1.32
3:J:800:BTI:C10	2:E:681:LYS:HZ2	1.42	1.31
3:F:802:BTI:C10	2:G:681:LYS:HZ2	1.42	1.31
3:C:800:BTI:C11	2:D:681:LYS:HZ2	1.35	1.30
3:C:800:BTI:C10	2:D:681:LYS:HZ2	1.46	1.28
3:F:802:BTI:C11	2:G:681:LYS:HZ2	1.38	1.27
3:H:802:BTI:C10	2:I:681:LYS:HZ2	1.49	1.25
3:J:800:BTI:C11	2:E:681:LYS:HZ2	1.38	1.25
3:A:800:BTI:C11	2:B:681:LYS:HZ2	1.42	1.17
1:C:217:THR:HG21	4:C:801:TW3:C8	1.77	1.15
1:F:217:THR:HG21	4:F:801:TW3:C8	1.77	1.14
1:A:217:THR:HG21	4:A:801:TW3:C8	1.77	1.14
1:J:217:THR:HG21	4:J:801:TW3:C8	1.78	1.14
1:K:217:THR:HG21	4:K:801:TW3:C8	1.77	1.12
1:H:217:THR:HG21	4:H:801:TW3:C8	1.78	1.12
1:F:217:THR:HG21	4:F:801:TW3:C9	1.80	1.12
1:C:217:THR:HG21	4:C:801:TW3:C9	1.80	1.11
1:H:217:THR:HG21	4:H:801:TW3:C9	1.80	1.10
1:J:217:THR:HG21	4:J:801:TW3:C9	1.80	1.10
1:K:217:THR:HG21	4:K:801:TW3:C9	1.79	1.10
1:A:217:THR:HG21	4:A:801:TW3:C9	1.80	1.09
1:K:408:MET:HE1	2:L:653:MET:HG3	1.34	1.07
1:C:409:VAL:HG11	1:F:242:ALA:HB3	1.38	1.03
3:K:802:BTI:C10	2:L:681:LYS:NZ	2.21	1.03
1:C:242:ALA:HB3	1:F:409:VAL:HG21	1.43	0.98
1:C:408:MET:HE1	2:D:653:MET:HG3	1.47	0.96
3:A:800:BTI:H103	2:B:681:LYS:HZ2	1.29	0.95
3:F:802:BTI:H103	2:G:681:LYS:HZ2	1.31	0.95
1:K:408:MET:CE	2:L:653:MET:HG3	1.97	0.94
1:A:217:THR:HG21	4:A:801:TW3:O2	1.68	0.94
1:C:217:THR:HG21	4:C:801:TW3:O2	1.68	0.94
1:K:217:THR:HG21	4:K:801:TW3:O2	1.69	0.93
2:G:170:MET:SD	2:G:177:VAL:HG11	2.09	0.93
3:J:800:BTI:H103	2:E:681:LYS:HZ2	1.31	0.93
2:B:170:MET:SD	2:B:177:VAL:HG11	2.09	0.93
2:D:170:MET:SD	2:D:177:VAL:HG11	2.09	0.93
2:L:170:MET:SD	2:L:177:VAL:HG11	2.09	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:170:MET:SD	2:E:177:VAL:HG11	2.09	0.93
1:J:424:LYS:HD3	1:K:563:MET:CE	2.00	0.92
1:A:563:MET:CE	1:F:424:LYS:HD3	1.99	0.92
3:K:802:BTI:C10	2:L:681:LYS:HZ2	1.82	0.92
1:F:217:THR:HG21	4:F:801:TW3:O2	1.69	0.92
1:J:563:MET:CE	1:K:424:LYS:HD3	2.00	0.92
2:I:170:MET:SD	2:I:177:VAL:HG11	2.09	0.92
1:J:217:THR:HG21	4:J:801:TW3:O2	1.68	0.91
1:A:424:LYS:HD3	1:F:563:MET:CE	2.00	0.91
1:C:563:MET:CE	1:H:424:LYS:HD3	1.99	0.91
1:H:217:THR:HG21	4:H:801:TW3:O2	1.70	0.91
1:F:408:MET:HE1	2:G:653:MET:HG3	1.53	0.90
3:K:802:BTI:C9	2:L:681:LYS:HZ1	1.84	0.90
1:C:424:LYS:HD3	1:H:563:MET:CE	2.00	0.90
3:K:802:BTI:H93	2:L:681:LYS:HZ1	1.36	0.90
1:A:563:MET:HE2	1:F:424:LYS:HD3	1.53	0.90
3:A:800:BTI:C10	2:B:681:LYS:NZ	2.21	0.89
3:C:800:BTI:H103	2:D:681:LYS:HZ2	1.34	0.89
3:H:802:BTI:C10	2:I:681:LYS:NZ	2.21	0.89
1:C:424:LYS:HD3	1:H:563:MET:HE2	1.54	0.88
1:A:409:VAL:HB	1:K:242:ALA:HB3	1.56	0.88
3:H:802:BTI:H103	2:I:681:LYS:HZ2	1.36	0.87
3:F:802:BTI:C10	2:G:681:LYS:NZ	2.21	0.87
1:A:424:LYS:HD3	1:F:563:MET:HE2	1.54	0.87
1:C:408:MET:CE	2:D:653:MET:HG3	2.05	0.87
2:E:606:ALA:HB3	2:B:95:ALA:HB3	1.57	0.86
1:H:408:MET:HE1	2:I:653:MET:HG3	1.57	0.86
1:C:563:MET:HE2	1:H:424:LYS:HD3	1.54	0.86
1:C:409:VAL:HG11	1:F:242:ALA:CB	2.05	0.86
2:G:606:ALA:HB3	2:L:95:ALA:HB3	1.58	0.85
3:K:802:BTI:H11	2:L:681:LYS:HZ3	1.04	0.85
1:C:242:ALA:CB	1:F:409:VAL:HG21	2.05	0.85
2:G:95:ALA:HB3	2:I:606:ALA:HB3	1.57	0.85
2:B:606:ALA:HB3	2:D:95:ALA:HB3	1.58	0.85
2:I:95:ALA:HB3	2:L:606:ALA:HB3	1.59	0.85
2:E:95:ALA:HB3	2:D:606:ALA:HB3	1.58	0.84
1:H:217:THR:CG2	4:H:801:TW3:C9	2.56	0.84
1:K:217:THR:CG2	4:K:801:TW3:C9	2.55	0.84
1:J:424:LYS:HD3	1:K:563:MET:HE2	1.59	0.84
1:J:563:MET:HE2	1:K:424:LYS:HD3	1.59	0.83
1:A:217:THR:CG2	4:A:801:TW3:C9	2.56	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:802:BTI:C10	2:L:681:LYS:HZ1	1.87	0.83
1:J:217:THR:CG2	4:J:801:TW3:C9	2.56	0.82
1:C:217:THR:CG2	4:C:801:TW3:C9	2.56	0.82
3:C:800:BTI:C10	2:D:681:LYS:NZ	2.21	0.82
3:K:802:BTI:C11	2:L:681:LYS:HZ1	1.91	0.82
1:F:408:MET:CE	2:G:653:MET:HG3	2.10	0.82
3:J:800:BTI:C10	2:E:681:LYS:NZ	2.21	0.81
1:F:217:THR:CG2	4:F:801:TW3:C9	2.56	0.81
1:A:217:THR:CG2	4:A:801:TW3:C8	2.59	0.80
1:C:217:THR:CG2	4:C:801:TW3:C8	2.59	0.80
1:J:217:THR:CG2	4:J:801:TW3:C8	2.59	0.80
1:J:408:MET:HE1	2:E:653:MET:HG3	1.63	0.79
3:A:800:BTI:H11	2:B:681:LYS:HZ1	1.46	0.79
1:K:217:THR:CG2	4:K:801:TW3:C8	2.59	0.79
1:F:217:THR:CG2	4:F:801:TW3:C8	2.59	0.78
3:A:800:BTI:C11	2:B:681:LYS:HZ3	1.68	0.77
1:C:411:ARG:HD2	1:F:255:VAL:HG21	1.67	0.77
1:J:255:VAL:HG21	1:H:411:ARG:HD2	1.67	0.76
1:A:390:LEU:HD23	1:F:560:ILE:CD1	2.15	0.76
1:A:560:ILE:CD1	1:F:390:LEU:HD23	2.15	0.76
1:H:217:THR:CG2	4:H:801:TW3:C8	2.60	0.76
1:C:390:LEU:HD23	1:H:560:ILE:CD1	2.16	0.75
1:J:411:ARG:HD2	1:H:255:VAL:HG21	1.67	0.75
1:J:560:ILE:CD1	1:K:390:LEU:HD23	2.16	0.75
1:C:255:VAL:HG21	1:F:411:ARG:HD2	1.68	0.75
3:C:800:BTI:H11	2:D:681:LYS:HZ1	1.50	0.74
1:C:560:ILE:CD1	1:H:390:LEU:HD23	2.16	0.74
1:A:255:VAL:HG21	1:K:411:ARG:HD2	1.68	0.74
1:J:390:LEU:HD23	1:K:560:ILE:CD1	2.17	0.74
3:J:800:BTI:H11	2:E:681:LYS:HZ1	1.48	0.73
3:F:802:BTI:H11	2:G:681:LYS:HZ1	1.48	0.73
3:F:802:BTI:H11	2:G:681:LYS:HZ3	0.82	0.72
1:C:560:ILE:HD11	1:H:390:LEU:HD23	1.72	0.71
1:A:411:ARG:HD2	1:K:255:VAL:HG21	1.73	0.71
3:A:800:BTI:H11	2:B:681:LYS:HZ3	0.80	0.71
1:A:560:ILE:HD11	1:F:390:LEU:HD23	1.71	0.71
1:J:560:ILE:HD11	1:K:390:LEU:HD23	1.72	0.70
1:A:390:LEU:HD23	1:F:560:ILE:HD11	1.72	0.70
1:A:408:MET:O	1:K:241:LEU:HD23	1.92	0.70
1:C:390:LEU:HD23	1:H:560:ILE:HD11	1.73	0.70
1:J:217:THR:CB	4:J:801:TW3:C9	2.70	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:191:PHE:CD2	4:C:801:TW3:C1	2.76	0.69
1:A:217:THR:CB	4:A:801:TW3:C9	2.70	0.69
1:F:217:THR:CB	4:F:801:TW3:C9	2.71	0.69
1:K:217:THR:CB	4:K:801:TW3:C9	2.70	0.69
1:J:390:LEU:HD23	1:K:560:ILE:HD11	1.72	0.69
1:F:191:PHE:CD2	4:F:801:TW3:C1	2.76	0.69
1:C:408:MET:HE1	2:D:653:MET:CG	2.20	0.69
1:J:191:PHE:CD2	4:J:801:TW3:C1	2.75	0.69
1:H:191:PHE:CD2	4:H:801:TW3:C1	2.76	0.68
1:C:217:THR:CB	4:C:801:TW3:C9	2.70	0.68
1:K:191:PHE:CD2	4:K:801:TW3:C1	2.77	0.68
1:H:217:THR:CB	4:H:801:TW3:C9	2.71	0.68
3:H:802:BTI:H11	2:I:681:LYS:HZ3	0.86	0.68
2:E:349:MET:HE2	2:E:415:ARG:HH21	1.59	0.67
2:B:284:LYS:O	2:B:385:ARG:NE	2.26	0.67
2:D:284:LYS:O	2:D:385:ARG:NE	2.26	0.67
2:G:349:MET:HE2	2:G:415:ARG:HH21	1.60	0.67
2:L:349:MET:HE2	2:L:415:ARG:HH21	1.60	0.67
1:A:191:PHE:CD2	4:A:801:TW3:C1	2.76	0.67
2:I:404:HIS:HB3	2:I:461:VAL:HB	1.77	0.67
2:E:404:HIS:HB3	2:E:461:VAL:HB	1.77	0.67
1:A:217:THR:CG2	4:A:801:TW3:O2	2.43	0.66
1:H:408:MET:CE	2:I:653:MET:HG3	2.25	0.66
2:B:349:MET:HE2	2:B:415:ARG:HH21	1.60	0.66
2:L:150:ILE:HD13	2:L:363:ALA:HB2	1.78	0.66
2:B:150:ILE:HD13	2:B:363:ALA:HB2	1.78	0.66
3:C:800:BTI:H11	2:D:681:LYS:HZ3	0.85	0.66
2:I:150:ILE:HD13	2:I:363:ALA:HB2	1.78	0.66
1:C:182:ALA:HB2	1:F:516:GLU:OE1	1.96	0.66
1:J:516:GLU:OE1	1:H:182:ALA:HB2	1.96	0.66
2:B:404:HIS:HB3	2:B:461:VAL:HB	1.77	0.66
2:I:349:MET:HE2	2:I:415:ARG:HH21	1.60	0.66
2:D:404:HIS:HB3	2:D:461:VAL:HB	1.77	0.66
1:J:182:ALA:HB2	1:H:516:GLU:OE1	1.95	0.66
2:D:150:ILE:HD13	2:D:363:ALA:HB2	1.78	0.66
2:E:150:ILE:HD13	2:E:363:ALA:HB2	1.78	0.66
2:D:349:MET:HE2	2:D:415:ARG:HH21	1.61	0.66
3:H:802:BTI:H93	2:I:681:LYS:HZ1	1.61	0.66
1:C:516:GLU:OE1	1:F:182:ALA:HB2	1.96	0.66
2:L:404:HIS:HB3	2:L:461:VAL:HB	1.77	0.66
2:G:404:HIS:HB3	2:G:461:VAL:HB	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:694:VAL:HG13	2:D:712:VAL:HG13	1.79	0.65
2:I:284:LYS:O	2:I:385:ARG:NE	2.26	0.65
2:E:694:VAL:HG13	2:E:712:VAL:HG13	1.79	0.65
2:L:178:VAL:HG23	2:L:332:CYS:HB3	1.79	0.65
1:J:408:MET:CE	2:E:653:MET:HG3	2.25	0.65
2:G:150:ILE:HD13	2:G:363:ALA:HB2	1.78	0.65
2:E:178:VAL:HG23	2:E:332:CYS:HB3	1.79	0.65
2:G:694:VAL:HG13	2:G:712:VAL:HG13	1.79	0.65
1:A:516:GLU:OE1	1:K:182:ALA:HB2	1.97	0.65
2:G:178:VAL:HG23	2:G:332:CYS:HB3	1.79	0.65
1:K:37:LEU:O	1:K:43:GLN:NE2	2.30	0.65
1:J:37:LEU:O	1:J:43:GLN:NE2	2.30	0.65
2:D:178:VAL:HG23	2:D:332:CYS:HB3	1.79	0.65
2:I:178:VAL:HG23	2:I:332:CYS:HB3	1.79	0.65
2:I:694:VAL:HG13	2:I:712:VAL:HG13	1.79	0.65
2:E:284:LYS:O	2:E:385:ARG:NE	2.26	0.64
1:A:182:ALA:HB2	1:K:516:GLU:OE1	1.97	0.64
1:A:37:LEU:O	1:A:43:GLN:NE2	2.30	0.64
1:F:37:LEU:O	1:F:43:GLN:NE2	2.30	0.64
2:G:284:LYS:O	2:G:385:ARG:NE	2.26	0.64
3:J:800:BTI:H11	2:E:681:LYS:HZ3	0.82	0.64
2:B:178:VAL:HG23	2:B:332:CYS:HB3	1.79	0.64
2:L:694:VAL:HG13	2:L:712:VAL:HG13	1.79	0.64
1:F:24:HIS:ND1	1:K:292:ARG:NE	2.46	0.64
1:F:408:MET:HE1	2:G:653:MET:CG	2.26	0.64
2:G:259:GLN:HB3	2:G:271:LEU:HB2	1.80	0.64
1:H:217:THR:CG2	4:H:801:TW3:O2	2.45	0.64
1:H:37:LEU:O	1:H:43:GLN:NE2	2.30	0.64
1:H:60:VAL:HG11	2:L:546:ASN:HB2	1.79	0.64
2:B:694:VAL:HG13	2:B:712:VAL:HG13	1.79	0.63
2:L:284:LYS:O	2:L:385:ARG:NE	2.26	0.63
2:B:259:GLN:HB3	2:B:271:LEU:HB2	1.80	0.63
2:L:259:GLN:HB3	2:L:271:LEU:HB2	1.80	0.63
1:H:292:ARG:NE	1:K:24:HIS:ND1	2.47	0.63
1:A:407:PHE:HE2	1:A:418:ILE:HG13	1.64	0.63
1:J:24:HIS:ND1	1:A:292:ARG:NE	2.47	0.63
3:J:800:BTI:C11	2:E:681:LYS:HZ3	1.74	0.63
3:F:802:BTI:C11	2:G:681:LYS:HZ3	1.74	0.63
1:A:24:HIS:ND1	1:C:292:ARG:NE	2.46	0.63
2:B:546:ASN:HB2	1:C:60:VAL:HG11	1.80	0.63
2:I:259:GLN:HB3	2:I:271:LEU:HB2	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:259:GLN:HB3	2:E:271:LEU:HB2	1.80	0.63
1:A:409:VAL:HB	1:K:242:ALA:CB	2.27	0.63
1:C:37:LEU:O	1:C:43:GLN:NE2	2.30	0.63
2:G:345:PRO:O	2:G:348:GLU:HB2	1.99	0.63
1:F:60:VAL:HG11	2:I:546:ASN:HB2	1.81	0.62
2:G:546:ASN:HB2	1:K:60:VAL:HG11	1.80	0.62
1:J:217:THR:CG2	4:J:801:TW3:O2	2.44	0.62
2:D:259:GLN:HB3	2:D:271:LEU:HB2	1.80	0.62
3:H:802:BTI:C11	2:I:681:LYS:HZ1	2.05	0.62
3:C:800:BTI:H93	2:D:681:LYS:HZ1	1.64	0.62
2:D:345:PRO:O	2:D:348:GLU:HB2	1.99	0.62
1:J:292:ARG:NE	1:C:24:HIS:ND1	2.48	0.62
1:F:217:THR:CG2	4:F:801:TW3:O2	2.44	0.62
2:B:345:PRO:O	2:B:348:GLU:HB2	1.99	0.62
1:F:292:ARG:NE	1:H:24:HIS:ND1	2.47	0.62
2:I:345:PRO:O	2:I:348:GLU:HB2	1.99	0.62
2:I:518:LYS:HG3	2:I:613:ILE:HD12	1.82	0.62
1:J:60:VAL:HG11	2:D:546:ASN:HB2	1.80	0.61
2:E:546:ASN:HB2	1:A:60:VAL:HG11	1.81	0.61
2:B:518:LYS:HG3	2:B:613:ILE:HD12	1.82	0.61
3:C:800:BTI:C11	2:D:681:LYS:HZ1	2.07	0.61
2:L:345:PRO:O	2:L:348:GLU:HB2	1.99	0.61
2:L:518:LYS:HG3	2:L:613:ILE:HD12	1.82	0.61
2:E:345:PRO:O	2:E:348:GLU:HB2	1.99	0.61
3:C:800:BTI:C9	2:D:681:LYS:NZ	2.64	0.61
3:H:802:BTI:C9	2:I:681:LYS:NZ	2.64	0.61
1:C:25:GLY:HA3	2:D:522:MET:SD	2.41	0.61
1:C:217:THR:CG2	4:C:801:TW3:O2	2.44	0.61
2:G:518:LYS:HG3	2:G:613:ILE:HD12	1.82	0.61
1:F:25:GLY:HA3	2:G:522:MET:SD	2.41	0.60
1:K:217:THR:CG2	4:K:801:TW3:O2	2.44	0.60
2:E:518:LYS:HG3	2:E:613:ILE:HD12	1.82	0.60
1:J:25:GLY:HA3	2:E:522:MET:SD	2.41	0.60
3:J:800:BTI:C9	2:E:681:LYS:NZ	2.64	0.60
2:D:518:LYS:HG3	2:D:613:ILE:HD12	1.82	0.60
1:H:25:GLY:HA3	2:I:522:MET:SD	2.41	0.60
1:A:25:GLY:HA3	2:B:522:MET:SD	2.41	0.60
3:F:802:BTI:C9	2:G:681:LYS:NZ	2.64	0.60
3:H:802:BTI:H11	2:I:681:LYS:HZ1	1.51	0.60
1:K:25:GLY:HA3	2:L:522:MET:SD	2.41	0.60
1:A:181:GLN:NE2	1:K:516:GLU:OE1	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:76:VAL:HG23	2:G:94:GLU:HB2	1.84	0.60
3:A:800:BTI:C9	2:B:681:LYS:NZ	2.64	0.59
3:C:800:BTI:H2	1:F:246:LEU:HD21	1.84	0.59
2:D:472:ASN:ND2	2:D:496:LEU:O	2.36	0.59
3:K:802:BTI:H103	2:L:681:LYS:NZ	2.16	0.59
1:C:516:GLU:OE1	1:F:181:GLN:NE2	2.36	0.59
1:J:181:GLN:NE2	1:H:516:GLU:OE1	2.35	0.59
2:E:76:VAL:HG23	2:E:94:GLU:HB2	1.84	0.59
2:E:547:ILE:HG22	1:A:61:GLU:OE2	2.02	0.59
2:D:76:VAL:HG23	2:D:94:GLU:HB2	1.84	0.59
2:B:547:ILE:HG22	1:C:61:GLU:OE2	2.03	0.59
1:H:61:GLU:OE2	2:L:547:ILE:HG22	2.03	0.59
2:L:388:ALA:HB2	2:L:434:ILE:HD11	1.85	0.59
2:L:472:ASN:ND2	2:L:496:LEU:O	2.36	0.59
1:J:246:LEU:HD21	3:H:802:BTI:H2	1.85	0.59
2:E:472:ASN:ND2	2:E:496:LEU:O	2.36	0.59
2:B:388:ALA:HB2	2:B:434:ILE:HD11	1.85	0.59
1:C:191:PHE:HD2	4:C:801:TW3:C1	2.16	0.59
1:A:246:LEU:HD21	3:K:802:BTI:H2	1.84	0.58
1:F:191:PHE:HD2	4:F:801:TW3:C1	2.16	0.58
2:L:76:VAL:HG23	2:L:94:GLU:HB2	1.84	0.58
2:G:472:ASN:ND2	2:G:496:LEU:O	2.36	0.58
2:I:388:ALA:HB2	2:I:434:ILE:HD11	1.85	0.58
2:G:71:LEU:HD21	2:G:357:GLU:HG2	1.86	0.58
1:J:155:ARG:NH1	1:J:158:GLU:OE2	2.36	0.58
1:C:125:ARG:NH2	1:C:130:GLU:OE2	2.37	0.58
2:D:71:LEU:HD21	2:D:357:GLU:HG2	1.86	0.58
2:D:388:ALA:HB2	2:D:434:ILE:HD11	1.85	0.58
2:I:472:ASN:ND2	2:I:496:LEU:O	2.36	0.58
3:H:802:BTI:C9	2:I:681:LYS:HZ1	2.16	0.58
2:E:388:ALA:HB2	2:E:434:ILE:HD11	1.85	0.58
1:A:516:GLU:OE1	1:K:181:GLN:NE2	2.35	0.58
1:C:181:GLN:NE2	1:F:516:GLU:OE1	2.35	0.58
1:F:61:GLU:OE2	2:I:547:ILE:HG22	2.02	0.58
1:F:155:ARG:NH1	1:F:158:GLU:OE2	2.36	0.58
2:G:388:ALA:HB2	2:G:434:ILE:HD11	1.85	0.58
1:H:125:ARG:NH2	1:H:130:GLU:OE2	2.37	0.58
1:J:424:LYS:HD3	1:K:563:MET:HE1	1.85	0.58
2:E:71:LEU:HD21	2:E:357:GLU:HG2	1.86	0.58
1:A:155:ARG:NH1	1:A:158:GLU:OE2	2.36	0.58
2:B:76:VAL:HG23	2:B:94:GLU:HB2	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:246:LEU:HD21	3:F:802:BTI:H2	1.84	0.58
2:I:76:VAL:HG23	2:I:94:GLU:HB2	1.84	0.58
2:I:81:GLU:HA	2:I:84:ARG:HE	1.69	0.58
2:I:668:VAL:HG11	2:I:694:VAL:HG23	1.86	0.58
2:D:81:GLU:HA	2:D:84:ARG:HE	1.69	0.58
1:J:239:ILE:O	1:J:266:HIS:NE2	2.34	0.58
1:F:125:ARG:NH2	1:F:130:GLU:OE2	2.37	0.57
2:G:291:ALA:O	2:G:299:ARG:NH2	2.37	0.57
1:A:125:ARG:NH2	1:A:130:GLU:OE2	2.37	0.57
2:B:472:ASN:ND2	2:B:496:LEU:O	2.36	0.57
2:I:456:ARG:NH2	2:I:622:SER:O	2.38	0.57
1:J:61:GLU:OE2	2:D:547:ILE:HG22	2.03	0.57
2:E:291:ALA:O	2:E:299:ARG:NH2	2.37	0.57
3:A:800:BTI:H2	1:K:246:LEU:HD21	1.85	0.57
2:B:668:VAL:HG11	2:B:694:VAL:HG23	1.86	0.57
2:G:668:VAL:HG11	2:G:694:VAL:HG23	1.86	0.57
2:I:71:LEU:HD21	2:I:357:GLU:HG2	1.86	0.57
2:L:456:ARG:NH2	2:L:622:SER:O	2.38	0.57
2:E:456:ARG:NH2	2:E:622:SER:O	2.38	0.57
2:B:81:GLU:HA	2:B:84:ARG:HE	1.69	0.57
2:D:456:ARG:NH2	2:D:622:SER:O	2.38	0.57
1:J:125:ARG:NH2	1:J:130:GLU:OE2	2.37	0.57
3:J:800:BTI:H2	1:H:246:LEU:HD21	1.85	0.57
2:B:456:ARG:NH2	2:B:622:SER:O	2.38	0.57
2:E:668:VAL:HG11	2:E:694:VAL:HG23	1.86	0.57
2:D:452:ARG:NH1	2:D:474:SER:OG	2.38	0.57
2:I:127:PRO:HB2	2:I:133:SER:HA	1.87	0.57
1:C:155:ARG:NH1	1:C:158:GLU:OE2	2.36	0.57
2:D:291:ALA:O	2:D:299:ARG:NH2	2.37	0.57
2:G:547:ILE:HG22	1:K:61:GLU:OE2	2.03	0.57
1:H:155:ARG:NH1	1:H:158:GLU:OE2	2.36	0.57
1:H:191:PHE:HD2	4:H:801:TW3:C1	2.16	0.57
2:L:127:PRO:HB2	2:L:133:SER:HA	1.87	0.57
2:G:456:ARG:NH2	2:G:622:SER:O	2.38	0.57
1:K:125:ARG:NH2	1:K:130:GLU:OE2	2.37	0.57
2:E:127:PRO:HB2	2:E:133:SER:HA	1.87	0.57
2:B:452:ARG:NH1	2:B:474:SER:OG	2.38	0.57
1:K:155:ARG:NH1	1:K:158:GLU:OE2	2.36	0.57
1:K:191:PHE:HD2	4:K:801:TW3:C1	2.17	0.57
2:L:71:LEU:HD21	2:L:357:GLU:HG2	1.86	0.57
2:L:152:PRO:HB3	2:L:315:TYR:HE1	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:668:VAL:HG11	2:L:694:VAL:HG23	1.86	0.57
1:J:191:PHE:HD2	4:J:801:TW3:C1	2.15	0.57
2:E:81:GLU:HA	2:E:84:ARG:HE	1.69	0.57
1:A:411:ARG:CZ	1:K:259:ASP:HB3	2.35	0.57
2:B:326:ASP:OD1	2:B:326:ASP:N	2.38	0.57
2:D:127:PRO:HB2	2:D:133:SER:HA	1.87	0.57
2:G:81:GLU:HA	2:G:84:ARG:HE	1.69	0.57
2:I:452:ARG:NH1	2:I:474:SER:OG	2.38	0.57
2:L:81:GLU:HA	2:L:84:ARG:HE	1.69	0.57
2:L:291:ALA:O	2:L:299:ARG:NH2	2.37	0.57
2:B:71:LEU:HD21	2:B:357:GLU:HG2	1.86	0.56
2:B:127:PRO:HB2	2:B:133:SER:HA	1.87	0.56
1:C:423:ALA:HB1	1:F:226:MET:HG2	1.87	0.56
2:D:383:GLU:HG3	2:D:438:VAL:HG22	1.87	0.56
2:G:383:GLU:HG3	2:G:438:VAL:HG22	1.87	0.56
2:I:254:ARG:NH2	2:I:292:PRO:O	2.38	0.56
1:C:226:MET:HG2	1:F:423:ALA:HB1	1.86	0.56
2:D:254:ARG:NH2	2:D:292:PRO:O	2.38	0.56
2:L:254:ARG:NH2	2:L:292:PRO:O	2.38	0.56
1:J:226:MET:HG2	1:H:423:ALA:HB1	1.86	0.56
1:J:516:GLU:OE1	1:H:181:GLN:NE2	2.36	0.56
2:G:98:ILE:HD12	2:G:106:SER:HB2	1.87	0.56
2:G:152:PRO:HB3	2:G:315:TYR:HE1	1.70	0.56
2:G:254:ARG:NH2	2:G:292:PRO:O	2.38	0.56
2:E:98:ILE:HD12	2:E:106:SER:HB2	1.87	0.56
2:B:254:ARG:NH2	2:B:292:PRO:O	2.38	0.56
2:G:127:PRO:HB2	2:G:133:SER:HA	1.87	0.56
2:E:254:ARG:NH2	2:E:292:PRO:O	2.38	0.56
1:A:226:MET:HG2	1:K:423:ALA:HB1	1.87	0.56
2:L:98:ILE:HD12	2:L:106:SER:HB2	1.87	0.56
2:B:668:VAL:CG1	2:B:694:VAL:HG23	2.36	0.56
2:D:668:VAL:HG11	2:D:694:VAL:HG23	1.86	0.56
1:F:24:HIS:HB3	1:K:292:ARG:NH2	2.21	0.56
2:G:452:ARG:NH1	2:G:474:SER:OG	2.38	0.56
2:B:152:PRO:HB3	2:B:315:TYR:HE1	1.70	0.56
2:L:383:GLU:HG3	2:L:438:VAL:HG22	1.87	0.56
2:D:254:ARG:HB2	2:D:325:MET:SD	2.46	0.56
1:J:511:LYS:O	1:J:515:GLU:HG2	2.06	0.56
1:A:191:PHE:HD2	4:A:801:TW3:C1	2.17	0.56
2:B:254:ARG:HB2	2:B:325:MET:SD	2.46	0.56
1:C:511:LYS:O	1:C:515:GLU:HG2	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:254:ARG:HB2	2:G:325:MET:SD	2.46	0.56
2:B:383:GLU:HG3	2:B:438:VAL:HG22	1.87	0.56
2:D:98:ILE:HD12	2:D:106:SER:HB2	1.87	0.56
2:I:152:PRO:HB3	2:I:315:TYR:HE1	1.70	0.56
2:I:254:ARG:HB2	2:I:325:MET:SD	2.46	0.56
1:K:239:ILE:O	1:K:266:HIS:NE2	2.34	0.56
1:A:423:ALA:HB1	1:K:226:MET:HG2	1.88	0.55
2:D:393:ASN:HB2	2:D:396:MET:HG2	1.88	0.55
2:G:461:VAL:HG11	2:G:612:ILE:HG21	1.88	0.55
1:H:511:LYS:O	1:H:515:GLU:HG2	2.06	0.55
2:L:254:ARG:HB2	2:L:325:MET:SD	2.46	0.55
1:J:423:ALA:HB1	1:H:226:MET:HG2	1.87	0.55
2:E:152:PRO:HB3	2:E:315:TYR:HE1	1.70	0.55
2:E:254:ARG:HB2	2:E:325:MET:SD	2.46	0.55
2:E:326:ASP:OD1	2:E:326:ASP:N	2.38	0.55
2:B:291:ALA:O	2:B:299:ARG:NH2	2.37	0.55
2:I:393:ASN:HB2	2:I:396:MET:HG2	1.88	0.55
2:I:291:ALA:O	2:I:299:ARG:NH2	2.37	0.55
2:I:383:GLU:HG3	2:I:438:VAL:HG22	1.87	0.55
2:I:668:VAL:CG1	2:I:694:VAL:HG23	2.36	0.55
2:L:452:ARG:NH1	2:L:474:SER:OG	2.38	0.55
1:J:24:HIS:HB3	1:A:292:ARG:NH2	2.22	0.55
2:E:383:GLU:HG3	2:E:438:VAL:HG22	1.87	0.55
2:E:393:ASN:HB2	2:E:396:MET:HG2	1.88	0.55
2:E:668:VAL:CG1	2:E:694:VAL:HG23	2.36	0.55
1:C:239:ILE:O	1:C:266:HIS:NE2	2.34	0.55
2:G:690:LYS:HB2	2:G:714:PHE:HE2	1.72	0.55
2:L:668:VAL:CG1	2:L:694:VAL:HG23	2.36	0.55
2:D:461:VAL:HG11	2:D:612:ILE:HG21	1.88	0.55
2:I:98:ILE:HD12	2:I:106:SER:HB2	1.87	0.55
2:E:654:THR:HG22	2:E:707:ARG:H	1.72	0.55
2:E:690:LYS:HB2	2:E:714:PHE:HE2	1.72	0.55
2:B:98:ILE:HD12	2:B:106:SER:HB2	1.87	0.55
2:D:668:VAL:CG1	2:D:694:VAL:HG23	2.36	0.55
1:J:292:ARG:NH2	1:C:24:HIS:HB3	2.22	0.55
1:J:563:MET:HE1	1:K:424:LYS:HD3	1.86	0.55
2:E:452:ARG:NH1	2:E:474:SER:OG	2.38	0.55
1:A:24:HIS:HB3	1:C:292:ARG:NH2	2.21	0.55
2:B:654:THR:HG22	2:B:707:ARG:H	1.72	0.55
1:F:511:LYS:O	1:F:515:GLU:HG2	2.06	0.55
1:H:292:ARG:NH2	1:K:24:HIS:HB3	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:112:LYS:O	2:I:116:VAL:HG23	2.07	0.55
2:L:654:THR:HG22	2:L:707:ARG:H	1.72	0.55
3:J:800:BTI:H93	2:E:681:LYS:HZ1	1.72	0.55
2:D:152:PRO:HB3	2:D:315:TYR:HE1	1.70	0.55
2:D:654:THR:HG22	2:D:707:ARG:H	1.72	0.55
2:G:393:ASN:HB2	2:G:396:MET:HG2	1.88	0.55
1:F:292:ARG:NH2	1:H:24:HIS:HB3	2.22	0.55
1:K:511:LYS:O	1:K:515:GLU:HG2	2.06	0.55
2:L:461:VAL:HG11	2:L:612:ILE:HG21	1.88	0.55
2:E:461:VAL:HG11	2:E:612:ILE:HG21	1.88	0.54
1:A:560:ILE:CD1	1:F:390:LEU:CD2	2.85	0.54
2:D:690:LYS:HB2	2:D:714:PHE:HE2	1.72	0.54
3:F:802:BTI:C11	2:G:681:LYS:HZ1	2.08	0.54
3:F:802:BTI:H93	2:G:681:LYS:HZ1	1.72	0.54
2:G:326:ASP:OD1	2:G:326:ASP:N	2.38	0.54
1:J:407:PHE:HE2	1:J:418:ILE:HG13	1.72	0.54
1:A:390:LEU:CD2	1:F:560:ILE:CD1	2.85	0.54
1:F:239:ILE:O	1:F:266:HIS:NE2	2.34	0.54
2:G:384:ALA:HB2	2:G:451:LEU:HD11	1.90	0.54
2:I:690:LYS:HB2	2:I:714:PHE:HE2	1.72	0.54
2:L:112:LYS:O	2:L:116:VAL:HG23	2.07	0.54
2:L:162:ILE:HG22	2:L:164:SER:H	1.73	0.54
2:L:393:ASN:HB2	2:L:396:MET:HG2	1.88	0.54
2:B:461:VAL:HG11	2:B:612:ILE:HG21	1.88	0.54
2:D:112:LYS:O	2:D:116:VAL:HG23	2.07	0.54
2:G:162:ILE:HG22	2:G:164:SER:H	1.72	0.54
2:L:384:ALA:HB2	2:L:451:LEU:HD11	1.90	0.54
1:J:390:LEU:CD2	1:K:560:ILE:CD1	2.86	0.54
2:I:178:VAL:HG13	2:I:248:LYS:HD3	1.90	0.54
2:I:654:THR:HG22	2:I:707:ARG:H	1.72	0.54
2:E:112:LYS:O	2:E:116:VAL:HG23	2.07	0.54
2:E:178:VAL:HG13	2:E:248:LYS:HD3	1.90	0.54
2:B:690:LYS:HB2	2:B:714:PHE:HE2	1.72	0.54
2:G:178:VAL:HG13	2:G:248:LYS:HD3	1.90	0.54
2:G:668:VAL:CG1	2:G:694:VAL:HG23	2.36	0.54
2:I:51:LYS:H	2:I:123:GLN:HE21	1.56	0.54
2:L:690:LYS:HB2	2:L:714:PHE:HE2	1.72	0.54
2:B:112:LYS:O	2:B:116:VAL:HG23	2.07	0.54
2:B:178:VAL:HG13	2:B:248:LYS:HD3	1.90	0.54
2:D:178:VAL:HG13	2:D:248:LYS:HD3	1.90	0.54
2:E:384:ALA:HB2	2:E:451:LEU:HD11	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:384:ALA:HB2	2:D:451:LEU:HD11	1.90	0.54
2:G:654:THR:HG22	2:G:707:ARG:H	1.72	0.54
1:K:238:THR:HG22	1:K:262:GLY:H	1.73	0.54
2:B:393:ASN:HB2	2:B:396:MET:HG2	1.88	0.54
2:L:51:LYS:H	2:L:123:GLN:HE21	1.56	0.54
2:L:178:VAL:HG13	2:L:248:LYS:HD3	1.90	0.54
1:A:511:LYS:O	1:A:515:GLU:HG2	2.06	0.54
2:B:261:PHE:CE2	2:B:358:TRP:HB3	2.43	0.54
2:B:384:ALA:HB2	2:B:451:LEU:HD11	1.90	0.54
1:C:411:ARG:HD2	1:F:255:VAL:CG2	2.38	0.54
2:L:653:MET:HG2	2:L:654:THR:N	2.23	0.54
1:J:238:THR:HG22	1:J:262:GLY:H	1.73	0.53
1:A:238:THR:HG22	1:A:262:GLY:H	1.73	0.53
2:B:162:ILE:HG22	2:B:164:SER:H	1.72	0.53
2:D:261:PHE:CE2	2:D:358:TRP:HB3	2.43	0.53
1:F:238:THR:HG22	1:F:262:GLY:H	1.73	0.53
1:A:239:ILE:O	1:A:266:HIS:NE2	2.34	0.53
2:B:51:LYS:H	2:B:123:GLN:HE21	1.56	0.53
2:B:653:MET:HG2	2:B:654:THR:N	2.23	0.53
2:D:653:MET:HG2	2:D:654:THR:N	2.23	0.53
2:G:112:LYS:O	2:G:116:VAL:HG23	2.07	0.53
1:H:239:ILE:O	1:H:266:HIS:NE2	2.34	0.53
2:I:162:ILE:HG22	2:I:164:SER:H	1.73	0.53
2:D:51:LYS:H	2:D:123:GLN:HE21	1.56	0.53
2:L:261:PHE:CE2	2:L:358:TRP:HB3	2.43	0.53
3:A:800:BTI:H93	2:B:681:LYS:NZ	2.23	0.53
3:C:800:BTI:C9	2:D:681:LYS:HZ1	2.20	0.53
2:G:653:MET:HG2	2:G:654:THR:N	2.23	0.53
1:H:238:THR:HG22	1:H:262:GLY:H	1.73	0.53
2:I:261:PHE:CE2	2:I:358:TRP:HB3	2.43	0.53
2:I:384:ALA:HB2	2:I:451:LEU:HD11	1.90	0.53
1:C:184:VAL:O	1:C:190:HIS:HB3	2.09	0.53
1:H:407:PHE:HE2	1:H:418:ILE:HG13	1.73	0.53
1:J:184:VAL:O	1:J:190:HIS:HB3	2.09	0.53
2:D:162:ILE:HG22	2:D:164:SER:H	1.73	0.53
2:I:461:VAL:HG11	2:I:612:ILE:HG21	1.89	0.53
2:G:261:PHE:CE2	2:G:358:TRP:HB3	2.43	0.53
2:B:695:LYS:NZ	2:B:715:GLU:OE1	2.34	0.53
1:C:560:ILE:CD1	1:H:390:LEU:CD2	2.86	0.53
1:F:184:VAL:O	1:F:190:HIS:HB3	2.09	0.53
1:H:184:VAL:O	1:H:190:HIS:HB3	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:800:BTI:H93	2:E:681:LYS:NZ	2.24	0.53
2:E:51:LYS:H	2:E:123:GLN:HE21	1.56	0.53
2:E:162:ILE:HG22	2:E:164:SER:H	1.72	0.53
2:E:261:PHE:CE2	2:E:358:TRP:HB3	2.43	0.53
2:E:653:MET:HG2	2:E:654:THR:N	2.23	0.53
1:C:238:THR:HG22	1:C:262:GLY:H	1.73	0.53
2:D:326:ASP:OD1	2:D:326:ASP:N	2.38	0.53
1:K:184:VAL:O	1:K:190:HIS:HB3	2.09	0.53
1:K:407:PHE:HE2	1:K:418:ILE:HG13	1.73	0.53
2:G:51:LYS:H	2:G:123:GLN:HE21	1.56	0.52
1:J:560:ILE:CD1	1:K:390:LEU:CD2	2.86	0.52
2:G:53:LEU:HD13	2:G:117:ALA:HB2	1.91	0.52
2:G:536:PRO:HB2	1:K:543:LEU:HD23	1.91	0.52
1:C:390:LEU:CD2	1:H:560:ILE:CD1	2.86	0.52
2:E:53:LEU:HD13	2:E:117:ALA:HB2	1.91	0.52
1:C:255:VAL:CG2	1:F:411:ARG:HD2	2.38	0.52
1:C:407:PHE:HE2	1:C:418:ILE:HG13	1.75	0.52
3:F:802:BTI:H93	2:G:681:LYS:NZ	2.23	0.52
2:I:653:MET:HG2	2:I:654:THR:N	2.23	0.52
3:C:800:BTI:H93	2:D:681:LYS:NZ	2.23	0.52
1:F:117:GLY:O	1:F:149:THR:OG1	2.26	0.52
2:B:53:LEU:HD13	2:B:117:ALA:HB2	1.91	0.52
1:A:184:VAL:O	1:A:190:HIS:HB3	2.09	0.52
1:C:191:PHE:CE2	4:C:801:TW3:C1	2.93	0.52
2:L:53:LEU:HD13	2:L:117:ALA:HB2	1.91	0.52
1:J:543:LEU:HD23	2:D:536:PRO:HB2	1.92	0.52
1:H:543:LEU:HD23	2:L:536:PRO:HB2	1.91	0.52
2:I:53:LEU:HD13	2:I:117:ALA:HB2	1.91	0.52
1:J:411:ARG:HD2	1:H:255:VAL:CG2	2.38	0.51
1:H:408:MET:HE1	2:I:653:MET:CG	2.35	0.51
1:A:255:VAL:CG2	1:K:411:ARG:HD2	2.38	0.51
2:I:326:ASP:OD1	2:I:326:ASP:N	2.38	0.51
1:K:35:PRO:HD3	1:K:337:ARG:HH22	1.76	0.51
1:A:376:LEU:HD23	1:A:407:PHE:CE1	2.46	0.51
1:F:35:PRO:HD3	1:F:337:ARG:HH22	1.76	0.51
1:J:191:PHE:CE2	4:J:801:TW3:C1	2.93	0.51
2:B:536:PRO:HB2	1:C:543:LEU:HD23	1.92	0.51
2:D:53:LEU:HD13	2:D:117:ALA:HB2	1.91	0.51
1:F:191:PHE:CE2	4:F:801:TW3:C1	2.94	0.51
3:J:800:BTI:C11	2:E:681:LYS:HZ1	2.08	0.51
1:C:242:ALA:HB3	1:F:409:VAL:CG2	2.29	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:406:SER:O	2:D:458:TYR:HA	2.11	0.51
1:H:35:PRO:HD3	1:H:337:ARG:HH22	1.76	0.51
1:A:35:PRO:HD3	1:A:337:ARG:HH22	1.76	0.51
1:A:191:PHE:CE2	4:A:801:TW3:C1	2.94	0.51
2:B:658:GLU:HB2	2:B:678:ILE:HG22	1.93	0.50
1:C:321:VAL:HG21	1:C:465:TRP:HZ3	1.77	0.50
1:A:321:VAL:HG21	1:A:465:TRP:HZ3	1.76	0.50
1:H:191:PHE:CE2	4:H:801:TW3:C1	2.94	0.50
1:K:191:PHE:CE2	4:K:801:TW3:C1	2.94	0.50
2:E:536:PRO:HB2	1:A:543:LEU:HD23	1.93	0.50
1:C:408:MET:HE3	2:D:653:MET:HG3	1.92	0.50
1:F:321:VAL:HG21	1:F:465:TRP:HZ3	1.76	0.50
2:G:406:SER:O	2:G:458:TYR:HA	2.11	0.50
1:H:321:VAL:HG21	1:H:465:TRP:HZ3	1.77	0.50
2:L:695:LYS:NZ	2:L:715:GLU:OE1	2.34	0.50
1:J:49:MET:HG2	1:J:318:TYR:CD1	2.47	0.50
2:E:406:SER:O	2:E:458:TYR:HA	2.11	0.50
1:A:49:MET:HG2	1:A:318:TYR:CD1	2.47	0.50
1:C:35:PRO:HD3	1:C:337:ARG:HH22	1.76	0.50
1:H:49:MET:HG2	1:H:318:TYR:CD1	2.47	0.50
2:I:658:GLU:HB2	2:I:678:ILE:HG22	1.94	0.50
2:B:406:SER:O	2:B:458:TYR:HA	2.11	0.50
1:C:49:MET:HG2	1:C:318:TYR:CD1	2.47	0.50
2:D:386:ILE:O	2:D:434:ILE:N	2.45	0.50
2:I:406:SER:O	2:I:458:TYR:HA	2.11	0.50
1:J:321:VAL:HG21	1:J:465:TRP:HZ3	1.76	0.50
1:C:563:MET:HE1	1:H:424:LYS:HD3	1.91	0.50
1:K:321:VAL:HG21	1:K:465:TRP:HZ3	1.77	0.50
2:L:406:SER:O	2:L:458:TYR:HA	2.11	0.50
2:L:658:GLU:HB2	2:L:678:ILE:HG22	1.94	0.50
1:J:35:PRO:HD3	1:J:337:ARG:HH22	1.76	0.49
1:J:255:VAL:CG2	1:H:411:ARG:HD2	2.38	0.49
2:B:386:ILE:O	2:B:434:ILE:N	2.45	0.49
2:G:658:GLU:HB2	2:G:678:ILE:HG22	1.93	0.49
2:E:150:ILE:HD11	2:E:359:GLN:HG3	1.94	0.49
1:F:543:LEU:HD23	2:I:536:PRO:HB2	1.93	0.49
2:L:386:ILE:O	2:L:434:ILE:N	2.45	0.49
2:E:252:THR:HG22	2:E:326:ASP:HB3	1.94	0.49
2:E:386:ILE:O	2:E:434:ILE:N	2.45	0.49
1:C:409:VAL:HG12	1:C:410:GLY:H	1.75	0.49
2:D:170:MET:SD	2:D:177:VAL:CG1	2.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:690:LYS:HB3	2:L:717:GLU:HG3	1.94	0.49
2:D:658:GLU:HB2	2:D:678:ILE:HG22	1.93	0.49
2:G:383:GLU:HA	2:G:437:LEU:O	2.13	0.49
2:I:386:ILE:O	2:I:434:ILE:N	2.45	0.49
1:K:49:MET:HG2	1:K:318:TYR:CD1	2.47	0.49
2:L:150:ILE:HD11	2:L:359:GLN:HG3	1.94	0.49
2:E:383:GLU:HA	2:E:437:LEU:O	2.13	0.49
2:E:690:LYS:HB3	2:E:717:GLU:HG3	1.94	0.49
3:H:802:BTI:H93	2:I:681:LYS:NZ	2.23	0.49
2:I:383:GLU:HA	2:I:437:LEU:O	2.13	0.49
2:L:170:MET:SD	2:L:177:VAL:CG1	2.94	0.49
2:D:383:GLU:HA	2:D:437:LEU:O	2.12	0.49
2:L:252:THR:HG22	2:L:326:ASP:HB3	1.94	0.49
1:A:412:GLU:H	1:A:412:GLU:CD	2.16	0.49
1:F:49:MET:HG2	1:F:318:TYR:CD1	2.47	0.49
2:B:150:ILE:HD11	2:B:359:GLN:HG3	1.94	0.49
2:G:386:ILE:O	2:G:434:ILE:N	2.45	0.49
1:J:301:ASP:OD1	1:J:301:ASP:N	2.46	0.48
2:E:658:GLU:HB2	2:E:678:ILE:HG22	1.94	0.48
2:B:252:THR:HG22	2:B:326:ASP:HB3	1.94	0.48
2:D:103:SER:HA	2:D:107:TYR:HB2	1.95	0.48
1:K:232:ILE:HD12	1:K:239:ILE:HD12	1.95	0.48
1:J:440:ILE:HB	1:J:464:ILE:HG22	1.96	0.48
2:E:103:SER:HA	2:E:107:TYR:HB2	1.96	0.48
2:G:690:LYS:HB3	2:G:717:GLU:HG3	1.94	0.48
1:H:440:ILE:HB	1:H:464:ILE:HG22	1.96	0.48
1:A:232:ILE:HD12	1:A:239:ILE:HD12	1.95	0.48
2:B:306:ALA:HB1	2:B:321:VAL:HG21	1.95	0.48
2:I:690:LYS:HB3	2:I:717:GLU:HG3	1.94	0.48
1:A:226:MET:CE	1:K:427:ALA:HB2	2.43	0.48
2:B:383:GLU:HA	2:B:437:LEU:O	2.13	0.48
1:C:440:ILE:HB	1:C:464:ILE:HG22	1.95	0.48
2:D:150:ILE:HD11	2:D:359:GLN:HG3	1.94	0.48
1:F:407:PHE:HE2	1:F:418:ILE:HG13	1.78	0.48
2:E:64:VAL:HA	2:E:356:VAL:HG11	1.96	0.48
1:A:117:GLY:O	1:A:149:THR:OG1	2.26	0.48
1:A:479:ALA:HB1	1:A:506:LYS:HG2	1.96	0.48
2:B:690:LYS:HB3	2:B:717:GLU:HG3	1.94	0.48
1:C:427:ALA:HB2	1:F:226:MET:CE	2.43	0.48
2:D:690:LYS:HB3	2:D:717:GLU:HG3	1.94	0.48
1:F:440:ILE:HB	1:F:464:ILE:HG22	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:150:ILE:HD11	2:G:359:GLN:HG3	1.94	0.48
2:I:306:ALA:HB1	2:I:321:VAL:HG21	1.96	0.48
1:K:440:ILE:HB	1:K:464:ILE:HG22	1.95	0.48
2:L:64:VAL:HA	2:L:356:VAL:HG11	1.96	0.48
2:L:383:GLU:HA	2:L:437:LEU:O	2.13	0.48
1:A:427:ALA:HB2	1:K:226:MET:CE	2.43	0.48
1:A:440:ILE:HB	1:A:464:ILE:HG22	1.96	0.48
1:K:301:ASP:OD1	1:K:301:ASP:N	2.47	0.48
2:L:340:LEU:HA	2:L:344:HIS:CE1	2.49	0.48
2:E:322:GLU:HB2	2:E:335:GLU:H	1.79	0.48
2:E:694:VAL:CG1	2:E:712:VAL:HG13	2.44	0.48
2:B:64:VAL:HA	2:B:356:VAL:HG11	1.96	0.48
2:D:252:THR:HG22	2:D:326:ASP:HB3	1.94	0.48
1:F:408:MET:HE3	2:G:653:MET:HG3	1.94	0.48
1:H:479:ALA:HB1	1:H:506:LYS:HG2	1.95	0.48
2:I:252:THR:HG22	2:I:326:ASP:HB3	1.94	0.48
1:J:226:MET:CE	1:H:427:ALA:HB2	2.43	0.48
2:B:669:LYS:O	2:B:688:SER:OG	2.25	0.48
1:C:226:MET:CE	1:F:427:ALA:HB2	2.43	0.48
2:D:322:GLU:HB2	2:D:335:GLU:H	1.79	0.48
2:B:322:GLU:HB2	2:B:335:GLU:H	1.79	0.48
2:G:64:VAL:HA	2:G:356:VAL:HG11	1.96	0.48
2:G:340:LEU:HA	2:G:344:HIS:CE1	2.49	0.48
2:I:340:LEU:HA	2:I:344:HIS:CE1	2.49	0.48
2:L:694:VAL:CG1	2:L:712:VAL:HG13	2.44	0.48
2:D:340:LEU:HA	2:D:344:HIS:CE1	2.49	0.48
2:I:64:VAL:HA	2:I:356:VAL:HG11	1.96	0.48
2:L:103:SER:HA	2:L:107:TYR:HB2	1.96	0.48
2:L:287:GLU:HB3	2:L:383:GLU:HB3	1.96	0.48
1:J:232:ILE:HD12	1:J:239:ILE:HD12	1.95	0.47
1:J:427:ALA:HB2	1:H:226:MET:CE	2.44	0.47
2:E:695:LYS:NZ	2:E:715:GLU:OE1	2.34	0.47
1:C:301:ASP:OD1	1:C:301:ASP:N	2.46	0.47
2:D:64:VAL:HA	2:D:356:VAL:HG11	1.96	0.47
2:I:287:GLU:HB3	2:I:383:GLU:HB3	1.96	0.47
2:I:322:GLU:HB2	2:I:335:GLU:H	1.79	0.47
2:G:252:THR:HG22	2:G:326:ASP:HB3	1.94	0.47
1:H:232:ILE:HD12	1:H:239:ILE:HD12	1.95	0.47
2:I:150:ILE:HD11	2:I:359:GLN:HG3	1.94	0.47
2:L:277:SER:H	2:L:284:LYS:HE3	1.79	0.47
2:E:277:SER:H	2:E:284:LYS:HE3	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:409:VAL:CG1	1:F:242:ALA:HB3	2.27	0.47
1:C:479:ALA:HB1	1:C:506:LYS:HG2	1.96	0.47
2:I:103:SER:HA	2:I:107:TYR:HB2	1.96	0.47
2:I:694:VAL:CG1	2:I:712:VAL:HG13	2.44	0.47
2:E:340:LEU:HA	2:E:344:HIS:CE1	2.49	0.47
1:A:301:ASP:OD1	1:A:301:ASP:N	2.47	0.47
2:B:651:ALA:HB2	2:B:711:LEU:HD21	1.97	0.47
2:B:694:VAL:CG1	2:B:712:VAL:HG13	2.44	0.47
2:I:651:ALA:HB2	2:I:711:LEU:HD21	1.97	0.47
1:K:110:ASP:OD1	1:K:111:ASN:N	2.48	0.47
2:B:287:GLU:HB3	2:B:383:GLU:HB3	1.96	0.47
2:B:500:ARG:NH1	2:B:557:ASP:OD2	2.48	0.47
1:J:479:ALA:HB1	1:J:506:LYS:HG2	1.96	0.47
2:D:306:ALA:HB1	2:D:321:VAL:HG21	1.96	0.47
2:G:306:ALA:HB1	2:G:321:VAL:HG21	1.95	0.47
1:J:110:ASP:OD1	1:J:111:ASN:N	2.48	0.47
1:J:414:GLU:OE2	1:H:241:LEU:HB3	2.15	0.47
2:E:287:GLU:HB3	2:E:383:GLU:HB3	1.96	0.47
2:B:277:SER:H	2:B:284:LYS:HE3	1.79	0.47
2:B:340:LEU:HA	2:B:344:HIS:CE1	2.49	0.47
1:C:110:ASP:OD1	1:C:111:ASN:N	2.48	0.47
2:D:175:VAL:O	2:D:177:VAL:HG13	2.15	0.47
2:D:287:GLU:HB3	2:D:383:GLU:HB3	1.96	0.47
2:D:651:ALA:HB2	2:D:711:LEU:HD21	1.97	0.47
1:F:217:THR:HA	1:F:240:PHE:HE1	1.80	0.47
2:G:103:SER:HA	2:G:107:TYR:HB2	1.96	0.47
2:G:277:SER:H	2:G:284:LYS:HE3	1.79	0.47
1:H:301:ASP:OD1	1:H:301:ASP:N	2.47	0.47
1:K:479:ALA:HB1	1:K:506:LYS:HG2	1.96	0.47
2:L:322:GLU:HB2	2:L:335:GLU:H	1.79	0.47
2:E:306:ALA:HB1	2:E:321:VAL:HG21	1.96	0.47
1:C:217:THR:HA	1:C:240:PHE:HE1	1.80	0.47
2:L:651:ALA:HB2	2:L:711:LEU:HD21	1.97	0.47
2:B:52:VAL:HG13	2:B:75:THR:HG22	1.97	0.47
2:D:694:VAL:CG1	2:D:712:VAL:HG13	2.44	0.47
1:F:110:ASP:OD1	1:F:111:ASN:N	2.48	0.47
1:F:232:ILE:HD12	1:F:239:ILE:HD12	1.95	0.47
2:G:175:VAL:O	2:G:177:VAL:HG13	2.15	0.47
2:G:322:GLU:HB2	2:G:335:GLU:H	1.79	0.47
2:I:175:VAL:O	2:I:177:VAL:HG13	2.15	0.47
2:L:306:ALA:HB1	2:L:321:VAL:HG21	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:181:GLN:HG2	1:H:513:PHE:CZ	2.51	0.47
2:G:287:GLU:HB3	2:G:383:GLU:HB3	1.97	0.47
1:J:217:THR:HA	1:J:240:PHE:HE1	1.80	0.46
1:J:402:GLN:NE2	1:J:452:MET:O	2.46	0.46
2:B:103:SER:HA	2:B:107:TYR:HB2	1.96	0.46
2:G:651:ALA:HB2	2:G:711:LEU:HD21	1.97	0.46
2:I:52:VAL:HG13	2:I:75:THR:HG22	1.97	0.46
2:I:285:ILE:HG23	2:I:286:ILE:HG12	1.97	0.46
2:E:175:VAL:O	2:E:177:VAL:HG13	2.15	0.46
2:D:52:VAL:HG13	2:D:75:THR:HG22	1.97	0.46
2:D:277:SER:H	2:D:284:LYS:HE3	1.80	0.46
2:G:52:VAL:HG13	2:G:75:THR:HG22	1.97	0.46
1:K:217:THR:OG1	4:K:801:TW3:C9	2.64	0.46
2:L:52:VAL:HG13	2:L:75:THR:HG22	1.97	0.46
2:L:500:ARG:NH1	2:L:557:ASP:OD2	2.48	0.46
2:E:651:ALA:HB2	2:E:711:LEU:HD21	1.97	0.46
1:A:217:THR:OG1	4:A:801:TW3:C9	2.63	0.46
1:C:232:ILE:HD12	1:C:239:ILE:HD12	1.95	0.46
1:H:217:THR:HA	1:H:240:PHE:HE1	1.80	0.46
2:I:277:SER:H	2:I:284:LYS:HE3	1.79	0.46
1:K:82:LEU:N	1:K:85:GLU:OE1	2.45	0.46
1:J:241:LEU:HB3	1:H:414:GLU:OE2	2.15	0.46
2:B:175:VAL:O	2:B:177:VAL:HG13	2.15	0.46
1:H:543:LEU:CD2	2:L:536:PRO:HB2	2.46	0.46
3:J:800:BTI:C9	2:E:681:LYS:HZ1	2.28	0.46
1:A:408:MET:HG3	1:A:413:TYR:CD2	2.50	0.46
2:B:285:ILE:HG23	2:B:286:ILE:HG12	1.97	0.46
2:D:500:ARG:NH1	2:D:557:ASP:OD2	2.48	0.46
1:F:479:ALA:HB1	1:F:506:LYS:HG2	1.96	0.46
2:G:500:ARG:NH1	2:G:557:ASP:OD2	2.48	0.46
2:L:285:ILE:HG23	2:L:286:ILE:HG12	1.97	0.46
2:L:323:PHE:CD1	2:L:331:PHE:HB2	2.51	0.46
2:E:52:VAL:HG13	2:E:75:THR:HG22	1.97	0.46
2:B:108:LEU:HD23	2:B:131:PHE:HB3	1.98	0.46
2:B:323:PHE:CD1	2:B:331:PHE:HB2	2.51	0.46
3:A:800:BTI:C9	2:B:681:LYS:HZ2	2.12	0.46
2:D:285:ILE:HG23	2:D:286:ILE:HG12	1.97	0.46
1:F:65:LEU:HD23	1:F:65:LEU:HA	1.80	0.46
2:I:108:LEU:HD23	2:I:131:PHE:HB3	1.98	0.46
2:L:175:VAL:O	2:L:177:VAL:HG13	2.15	0.46
1:J:217:THR:OG1	4:J:801:TW3:C9	2.64	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:217:THR:OG1	4:F:801:TW3:C9	2.64	0.46
1:J:70:LYS:HB3	1:J:70:LYS:HE3	1.74	0.46
2:G:323:PHE:CD1	2:G:331:PHE:HB2	2.51	0.46
1:H:234:ARG:HA	1:H:263:ALA:HB3	1.98	0.46
2:L:108:LEU:HD23	2:L:131:PHE:HB3	1.98	0.46
2:E:500:ARG:NH1	2:E:557:ASP:OD2	2.48	0.46
2:B:170:MET:SD	2:B:177:VAL:CG1	2.94	0.46
1:C:234:ARG:HA	1:C:263:ALA:HB3	1.98	0.46
2:D:108:LEU:HD23	2:D:131:PHE:HB3	1.98	0.46
2:I:323:PHE:CD1	2:I:331:PHE:HB2	2.51	0.46
2:I:408:PRO:HD3	2:I:458:TYR:HB2	1.99	0.46
1:K:201:MET:HB2	1:K:201:MET:HE2	1.82	0.46
1:K:217:THR:HA	1:K:240:PHE:HE1	1.80	0.46
2:L:408:PRO:HD3	2:L:458:TYR:HB2	1.98	0.46
1:J:82:LEU:N	1:J:85:GLU:OE1	2.45	0.45
2:E:460:ILE:HG13	2:E:465:THR:HG21	1.99	0.45
2:E:590:TYR:HE1	2:E:599:LYS:HB2	1.82	0.45
1:C:217:THR:OG1	4:C:801:TW3:C9	2.64	0.45
1:C:513:PHE:CZ	1:F:181:GLN:HG2	2.51	0.45
1:F:201:MET:HB2	1:F:201:MET:HE2	1.81	0.45
1:J:179:PRO:O	1:H:512:LYS:NZ	2.40	0.45
1:C:201:MET:HB2	1:C:201:MET:HE2	1.84	0.45
1:C:414:GLU:OE2	1:F:241:LEU:HB3	2.16	0.45
2:I:460:ILE:HG13	2:I:465:THR:HG21	1.99	0.45
2:E:170:MET:SD	2:E:177:VAL:CG1	2.94	0.45
2:E:285:ILE:HG23	2:E:286:ILE:HG12	1.97	0.45
2:E:411:ASP:N	2:E:411:ASP:OD1	2.50	0.45
1:A:495:LYS:NZ	1:A:496:GLN:O	2.50	0.45
2:B:408:PRO:HD3	2:B:458:TYR:HB2	1.99	0.45
2:G:590:TYR:HE1	2:G:599:LYS:HB2	1.81	0.45
1:H:402:GLN:NE2	1:H:452:MET:O	2.46	0.45
1:J:495:LYS:NZ	1:J:496:GLN:O	2.50	0.45
2:D:323:PHE:CD1	2:D:331:PHE:HB2	2.51	0.45
2:D:460:ILE:HG13	2:D:465:THR:HG21	1.99	0.45
2:G:460:ILE:HG13	2:G:465:THR:HG21	1.99	0.45
2:I:411:ASP:OD1	2:I:411:ASP:N	2.50	0.45
2:L:590:TYR:HE1	2:L:599:LYS:HB2	1.81	0.45
2:E:323:PHE:CD1	2:E:331:PHE:HB2	2.51	0.45
2:E:532:ASP:OD2	1:A:365:TYR:OH	2.34	0.45
1:A:70:LYS:HB3	1:A:70:LYS:HE3	1.74	0.45
1:A:234:ARG:HA	1:A:263:ALA:HB3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:181:GLN:HG2	1:F:513:PHE:CZ	2.51	0.45
2:G:694:VAL:CG1	2:G:712:VAL:HG13	2.44	0.45
2:L:408:PRO:HG3	2:L:454:SER:HB3	1.98	0.45
2:L:460:ILE:HG13	2:L:465:THR:HG21	1.99	0.45
1:J:513:PHE:CZ	1:H:181:GLN:HG2	2.51	0.45
1:A:513:PHE:CZ	1:K:181:GLN:HG2	2.52	0.45
2:B:411:ASP:N	2:B:411:ASP:OD1	2.50	0.45
2:B:536:PRO:HB2	1:C:543:LEU:CD2	2.47	0.45
1:H:292:ARG:CZ	1:K:24:HIS:HB3	2.47	0.45
1:A:294:LEU:HD23	1:A:294:LEU:HA	1.82	0.45
2:B:460:ILE:HG13	2:B:465:THR:HG21	1.99	0.45
1:F:495:LYS:NZ	1:F:496:GLN:O	2.50	0.45
1:F:525:ARG:H	1:F:525:ARG:HD2	1.82	0.45
2:I:280:ARG:HE	2:I:281:ARG:HG2	1.82	0.45
2:E:408:PRO:HD3	2:E:458:TYR:HB2	1.99	0.45
1:A:414:GLU:OE2	1:K:241:LEU:HB3	2.17	0.45
2:B:590:TYR:HE1	2:B:599:LYS:HB2	1.81	0.45
2:G:170:MET:SD	2:G:177:VAL:CG1	2.94	0.45
2:G:285:ILE:HG23	2:G:286:ILE:HG12	1.97	0.45
1:A:181:GLN:HG2	1:K:513:PHE:CZ	2.52	0.45
1:A:217:THR:HA	1:A:240:PHE:HE1	1.80	0.45
1:A:563:MET:HE1	1:F:424:LYS:HD3	1.94	0.45
1:C:241:LEU:HB3	1:F:414:GLU:OE2	2.16	0.45
1:C:402:GLN:NE2	1:C:452:MET:O	2.46	0.45
1:C:495:LYS:NZ	1:C:496:GLN:O	2.50	0.45
2:D:473:LEU:HD12	2:D:489:ILE:HD11	1.99	0.45
1:F:234:ARG:HA	1:F:263:ALA:HB3	1.98	0.45
2:G:411:ASP:N	2:G:411:ASP:OD1	2.50	0.45
1:H:217:THR:OG1	4:H:801:TW3:C9	2.65	0.45
2:B:280:ARG:HE	2:B:281:ARG:HG2	1.82	0.45
1:F:410:GLY:O	1:F:414:GLU:HG2	2.17	0.45
2:G:108:LEU:HD23	2:G:131:PHE:HB3	1.98	0.45
2:E:408:PRO:HG3	2:E:454:SER:HB3	1.98	0.44
1:A:241:LEU:HB3	1:K:414:GLU:OE2	2.17	0.44
2:B:408:PRO:HG3	2:B:454:SER:HB3	1.98	0.44
2:D:280:ARG:HE	2:D:281:ARG:HG2	1.82	0.44
2:D:408:PRO:HG3	2:D:454:SER:HB3	1.98	0.44
2:D:408:PRO:HD3	2:D:458:TYR:HB2	1.99	0.44
1:F:409:VAL:HG22	1:F:410:GLY:H	1.80	0.44
1:K:410:GLY:O	1:K:414:GLU:HG2	2.17	0.44
2:E:108:LEU:HD23	2:E:131:PHE:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:82:LEU:N	1:C:85:GLU:OE1	2.45	0.44
1:C:410:GLY:O	1:C:414:GLU:HG2	2.17	0.44
2:G:473:LEU:HD12	2:G:489:ILE:HD11	1.99	0.44
1:K:234:ARG:HA	1:K:263:ALA:HB3	1.98	0.44
2:L:326:ASP:OD1	2:L:326:ASP:N	2.38	0.44
2:D:590:TYR:HE1	2:D:599:LYS:HB2	1.82	0.44
2:G:408:PRO:HD3	2:G:458:TYR:HB2	1.99	0.44
2:G:536:PRO:HB2	1:K:543:LEU:CD2	2.47	0.44
2:I:500:ARG:NH1	2:I:557:ASP:OD2	2.48	0.44
1:K:525:ARG:H	1:K:525:ARG:HD2	1.82	0.44
1:J:543:LEU:CD2	2:D:536:PRO:HB2	2.47	0.44
2:E:280:ARG:HE	2:E:281:ARG:HG2	1.82	0.44
2:I:408:PRO:HG3	2:I:454:SER:HB3	1.98	0.44
1:K:495:LYS:HA	1:K:495:LYS:HD2	1.88	0.44
3:F:802:BTI:C9	2:G:681:LYS:HZ1	2.28	0.44
1:A:525:ARG:H	1:A:525:ARG:HD2	1.82	0.44
1:F:365:TYR:OH	2:I:532:ASP:OD2	2.33	0.44
2:G:280:ARG:HE	2:G:281:ARG:HG2	1.82	0.44
2:G:408:PRO:HG3	2:G:454:SER:HB3	1.99	0.44
1:H:410:GLY:O	1:H:414:GLU:HG2	2.17	0.44
1:K:495:LYS:NZ	1:K:496:GLN:O	2.50	0.44
1:J:408:MET:HE1	2:E:653:MET:CG	2.40	0.44
1:A:24:HIS:HB3	1:C:292:ARG:CZ	2.47	0.44
1:A:402:GLN:NE2	1:A:452:MET:O	2.46	0.44
2:L:280:ARG:HE	2:L:281:ARG:HG2	1.82	0.44
1:J:234:ARG:HA	1:J:263:ALA:HB3	1.98	0.44
1:A:229:GLU:OE2	1:A:275:HIS:NE2	2.38	0.44
1:H:525:ARG:H	1:H:525:ARG:HD2	1.82	0.44
1:J:274:ASP:OD1	1:C:348:LYS:HE3	2.18	0.44
1:J:348:LYS:HE3	1:A:274:ASP:OD1	2.18	0.44
1:J:525:ARG:H	1:J:525:ARG:HD2	1.82	0.44
2:E:536:PRO:HB2	1:A:543:LEU:CD2	2.48	0.44
1:C:229:GLU:OE2	1:C:275:HIS:NE2	2.38	0.44
2:D:153:PRO:O	2:D:157:ILE:HG13	2.18	0.44
1:F:543:LEU:CD2	2:I:536:PRO:HB2	2.48	0.44
2:I:590:TYR:HE1	2:I:599:LYS:HB2	1.81	0.44
1:K:402:GLN:NE2	1:K:452:MET:O	2.46	0.44
2:L:411:ASP:N	2:L:411:ASP:OD1	2.50	0.44
2:B:473:LEU:HD12	2:B:489:ILE:HD11	1.99	0.43
1:F:24:HIS:HB3	1:K:292:ARG:CZ	2.47	0.43
1:H:495:LYS:NZ	1:H:496:GLN:O	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:410:GLY:O	1:J:414:GLU:HG2	2.17	0.43
1:C:70:LYS:HB3	1:C:70:LYS:HE3	1.74	0.43
2:D:411:ASP:OD1	2:D:411:ASP:N	2.50	0.43
2:I:152:PRO:HB3	2:I:315:TYR:CE1	2.53	0.43
2:E:659:LYS:HD3	2:E:701:GLU:OE1	2.19	0.43
1:A:376:LEU:HD23	1:A:407:PHE:HE1	1.83	0.43
1:C:495:LYS:HA	1:C:495:LYS:HD2	1.88	0.43
1:F:229:GLU:OE2	1:F:275:HIS:NE2	2.38	0.43
2:D:659:LYS:HD3	2:D:701:GLU:OE1	2.19	0.43
1:F:70:LYS:HB3	1:F:70:LYS:HE3	1.74	0.43
2:E:152:PRO:HB3	2:E:315:TYR:CE1	2.53	0.43
1:A:110:ASP:OD1	1:A:111:ASN:N	2.48	0.43
2:I:659:LYS:HD3	2:I:701:GLU:OE1	2.19	0.43
2:L:473:LEU:HD12	2:L:489:ILE:HD11	1.99	0.43
2:L:659:LYS:HD3	2:L:701:GLU:OE1	2.18	0.43
1:J:292:ARG:CZ	1:C:24:HIS:HB3	2.49	0.43
1:A:512:LYS:NZ	1:K:179:PRO:O	2.40	0.43
2:G:157:ILE:HG23	2:G:160:MET:HE3	2.01	0.43
2:E:153:PRO:O	2:E:157:ILE:HG13	2.18	0.43
1:A:186:PRO:HG3	1:K:527:TRP:CH2	2.54	0.43
1:C:525:ARG:HD2	1:C:525:ARG:H	1.82	0.43
1:F:292:ARG:CZ	1:H:24:HIS:HB3	2.49	0.43
1:H:110:ASP:OD1	1:H:111:ASN:N	2.48	0.43
1:J:365:TYR:OH	2:D:532:ASP:OD2	2.33	0.43
1:A:407:PHE:O	2:B:680:MET:SD	2.76	0.43
1:C:234:ARG:HG3	1:C:235:LYS:H	1.84	0.43
2:D:669:LYS:O	2:D:688:SER:OG	2.25	0.43
1:H:274:ASP:OD1	1:K:348:LYS:HE3	2.19	0.43
1:K:234:ARG:HG3	1:K:235:LYS:H	1.84	0.43
2:B:659:LYS:HD3	2:B:701:GLU:OE1	2.19	0.43
1:C:512:LYS:NZ	1:F:179:PRO:O	2.41	0.43
1:F:82:LEU:N	1:F:85:GLU:OE1	2.45	0.43
2:G:342:VAL:HG21	2:G:385:ARG:HH12	1.84	0.43
2:G:659:LYS:HD3	2:G:701:GLU:OE1	2.19	0.43
1:H:82:LEU:N	1:H:85:GLU:OE1	2.45	0.43
1:H:420:LYS:HG3	1:H:424:LYS:NZ	2.34	0.43
2:I:473:LEU:HD12	2:I:489:ILE:HD11	1.99	0.43
1:K:70:LYS:HB3	1:K:70:LYS:HE3	1.74	0.43
1:K:294:LEU:HD23	1:K:294:LEU:HA	1.82	0.43
2:E:473:LEU:HD12	2:E:489:ILE:HD11	1.99	0.43
1:A:420:LYS:HG3	1:A:424:LYS:NZ	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:800:BTI:HG3	2:B:681:LYS:HZ1	1.83	0.43
2:D:135:ASN:OD1	2:D:137:GLU:HG2	2.19	0.43
2:D:383:GLU:HG2	2:D:436:LYS:HG3	2.01	0.43
2:D:439:VAL:HG21	2:D:451:LEU:HB2	2.01	0.43
1:F:274:ASP:OD1	1:H:348:LYS:HE3	2.18	0.43
2:G:483:ASN:OD1	2:G:483:ASN:N	2.49	0.43
1:H:417:GLY:O	1:H:420:LYS:HG2	2.19	0.43
2:I:383:GLU:HG2	2:I:436:LYS:HG3	2.01	0.43
2:L:153:PRO:O	2:L:157:ILE:HG13	2.18	0.43
1:J:242:ALA:HB2	1:H:409:VAL:HG11	2.01	0.42
2:E:408:PRO:HG2	2:E:416:ILE:HD11	2.01	0.42
1:A:417:GLY:O	1:A:420:LYS:HG2	2.19	0.42
2:D:152:PRO:HB3	2:D:315:TYR:CE1	2.53	0.42
1:F:417:GLY:O	1:F:420:LYS:HG2	2.19	0.42
2:G:439:VAL:HG21	2:G:451:LEU:HB2	2.01	0.42
1:H:539:LEU:HD21	2:L:543:ARG:HG2	2.01	0.42
2:I:153:PRO:O	2:I:157:ILE:HG13	2.18	0.42
2:E:135:ASN:OD1	2:E:137:GLU:HG2	2.19	0.42
2:E:669:LYS:O	2:E:688:SER:OG	2.25	0.42
2:B:153:PRO:O	2:B:157:ILE:HG13	2.18	0.42
2:D:125:ILE:HG13	2:D:147:ILE:HG21	2.01	0.42
1:J:234:ARG:HG3	1:J:235:LYS:H	1.84	0.42
1:J:409:VAL:HG11	1:H:242:ALA:HB2	2.00	0.42
1:J:539:LEU:HD21	2:D:543:ARG:HG2	2.01	0.42
1:A:348:LYS:HE3	1:C:274:ASP:OD1	2.19	0.42
1:C:232:ILE:HD13	1:C:263:ALA:HA	2.02	0.42
1:C:417:GLY:O	1:C:420:LYS:HG2	2.19	0.42
1:F:234:ARG:HG3	1:F:235:LYS:H	1.84	0.42
1:F:348:LYS:HE3	1:K:274:ASP:OD1	2.20	0.42
2:I:135:ASN:OD1	2:I:137:GLU:HG2	2.19	0.42
1:K:420:LYS:HG3	1:K:424:LYS:NZ	2.34	0.42
1:A:527:TRP:CH2	1:K:186:PRO:HG3	2.54	0.42
2:B:383:GLU:HG2	2:B:436:LYS:HG3	2.01	0.42
2:G:153:PRO:O	2:G:157:ILE:HG13	2.18	0.42
2:G:383:GLU:HG2	2:G:436:LYS:HG3	2.01	0.42
1:H:234:ARG:HG3	1:H:235:LYS:H	1.84	0.42
2:I:125:ILE:HG13	2:I:147:ILE:HG21	2.01	0.42
2:I:170:MET:SD	2:I:177:VAL:CG1	2.94	0.42
2:I:342:VAL:HG21	2:I:385:ARG:HH12	1.84	0.42
1:J:294:LEU:HD23	1:J:294:LEU:HA	1.82	0.42
1:J:417:GLY:O	1:J:420:LYS:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:65:LEU:HD23	1:C:65:LEU:HA	1.80	0.42
1:C:527:TRP:CH2	1:F:186:PRO:HG3	2.55	0.42
2:D:342:VAL:HG21	2:D:385:ARG:HH12	1.84	0.42
1:F:420:LYS:HG3	1:F:424:LYS:NZ	2.34	0.42
2:G:135:ASN:OD1	2:G:137:GLU:HG2	2.19	0.42
2:G:408:PRO:HG2	2:G:416:ILE:HD11	2.02	0.42
1:H:229:GLU:OE2	1:H:275:HIS:NE2	2.38	0.42
2:I:654:THR:HA	2:I:705:ALA:O	2.20	0.42
2:E:439:VAL:HG21	2:E:451:LEU:HB2	2.01	0.42
2:E:654:THR:HA	2:E:705:ALA:O	2.20	0.42
1:A:234:ARG:HG3	1:A:235:LYS:H	1.84	0.42
1:F:232:ILE:HD13	1:F:263:ALA:HA	2.02	0.42
1:F:539:LEU:HD21	2:I:543:ARG:HG2	2.02	0.42
1:H:232:ILE:HD13	1:H:263:ALA:HA	2.02	0.42
2:L:408:PRO:HG2	2:L:416:ILE:HD11	2.02	0.42
2:B:342:VAL:HG21	2:B:385:ARG:HH12	1.84	0.42
2:D:49:ILE:HG22	2:D:73:VAL:HG11	2.01	0.42
2:D:175:VAL:HG22	2:D:176:PRO:HD2	2.01	0.42
2:D:654:THR:HA	2:D:705:ALA:O	2.20	0.42
2:G:125:ILE:HG13	2:G:147:ILE:HG21	2.01	0.42
2:G:175:VAL:HG22	2:G:176:PRO:HD2	2.01	0.42
1:H:407:PHE:HB3	3:H:802:BTI:N2	2.35	0.42
2:I:49:ILE:HG22	2:I:73:VAL:HG11	2.01	0.42
2:L:135:ASN:OD1	2:L:137:GLU:HG2	2.19	0.42
1:J:232:ILE:HD13	1:J:263:ALA:HA	2.02	0.42
1:J:407:PHE:HB3	3:J:800:BTI:N2	2.34	0.42
2:B:135:ASN:OD1	2:B:137:GLU:HG2	2.19	0.42
2:I:439:VAL:HG21	2:I:451:LEU:HB2	2.01	0.42
1:K:232:ILE:HD13	1:K:263:ALA:HA	2.02	0.42
1:K:417:GLY:O	1:K:420:LYS:HG2	2.19	0.42
2:L:175:VAL:HG22	2:L:176:PRO:HD2	2.02	0.42
2:E:342:VAL:HG21	2:E:385:ARG:HH12	1.84	0.42
2:E:383:GLU:HG2	2:E:436:LYS:HG3	2.01	0.42
2:B:654:THR:HA	2:B:705:ALA:O	2.20	0.42
1:C:407:PHE:HB3	3:C:800:BTI:N2	2.35	0.42
1:C:420:LYS:HG3	1:C:424:LYS:NZ	2.34	0.42
2:L:654:THR:HA	2:L:705:ALA:O	2.20	0.42
1:J:420:LYS:HG3	1:J:424:LYS:NZ	2.34	0.42
1:A:232:ILE:HD13	1:A:263:ALA:HA	2.02	0.42
2:B:532:ASP:OD2	1:C:365:TYR:OH	2.34	0.42
1:C:226:MET:HE3	1:F:427:ALA:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:407:PHE:HB3	3:F:802:BTI:N2	2.35	0.42
1:J:24:HIS:HB3	1:A:292:ARG:CZ	2.49	0.41
1:A:410:GLY:CA	1:A:413:TYR:HD2	2.32	0.41
2:B:49:ILE:HG22	2:B:73:VAL:HG11	2.01	0.41
2:B:408:PRO:HG2	2:B:416:ILE:HD11	2.02	0.41
1:C:409:VAL:HG12	1:C:410:GLY:N	2.35	0.41
2:L:383:GLU:HG2	2:L:436:LYS:HG3	2.01	0.41
2:L:439:VAL:HG21	2:L:451:LEU:HB2	2.01	0.41
2:E:659:LYS:HB2	2:E:659:LYS:HE2	1.94	0.41
2:B:439:VAL:HG21	2:B:451:LEU:HB2	2.01	0.41
1:F:377:PHE:CD1	1:F:408:MET:HB2	2.55	0.41
2:G:49:ILE:HG23	2:G:123:GLN:HE22	1.85	0.41
2:G:402:LEU:HD11	2:G:422:GLN:HA	2.03	0.41
2:L:49:ILE:HG22	2:L:73:VAL:HG11	2.01	0.41
2:L:125:ILE:HG13	2:L:147:ILE:HG21	2.01	0.41
1:J:65:LEU:HD23	1:J:65:LEU:HA	1.80	0.41
2:E:49:ILE:HG22	2:E:73:VAL:HG11	2.01	0.41
2:D:157:ILE:HG23	2:D:160:MET:HE3	2.02	0.41
1:F:294:LEU:HD23	1:F:294:LEU:HA	1.82	0.41
2:G:654:THR:HA	2:G:705:ALA:O	2.20	0.41
2:L:342:VAL:HG21	2:L:385:ARG:HH12	1.84	0.41
1:A:242:ALA:HB2	1:K:409:VAL:HG11	2.02	0.41
1:A:407:PHE:CD2	1:K:241:LEU:HD21	2.56	0.41
1:A:506:LYS:O	1:A:510:ILE:HG12	2.21	0.41
1:H:65:LEU:HA	1:H:65:LEU:HD23	1.80	0.41
2:E:157:ILE:HG23	2:E:160:MET:HE3	2.02	0.41
2:E:280:ARG:HG2	2:E:285:ILE:HD13	2.03	0.41
1:A:495:LYS:HA	1:A:495:LYS:HD2	1.88	0.41
2:B:86:SER:O	2:B:89:VAL:HG12	2.21	0.41
2:B:125:ILE:HG13	2:B:147:ILE:HG21	2.01	0.41
2:B:157:ILE:HG23	2:B:160:MET:HE3	2.02	0.41
2:D:49:ILE:HG23	2:D:123:GLN:HE22	1.85	0.41
2:D:402:LEU:HD11	2:D:422:GLN:HA	2.03	0.41
1:F:402:GLN:NE2	1:F:452:MET:O	2.46	0.41
2:G:86:SER:O	2:G:89:VAL:HG12	2.21	0.41
1:H:407:PHE:HE2	1:H:418:ILE:CG1	2.33	0.41
2:L:86:SER:O	2:L:89:VAL:HG12	2.21	0.41
2:E:125:ILE:HG13	2:E:147:ILE:HG21	2.01	0.41
2:E:513:LEU:HD22	2:E:585:VAL:HG12	2.03	0.41
1:C:186:PRO:HG3	1:F:527:TRP:CH2	2.54	0.41
1:C:506:LYS:O	1:C:510:ILE:HG12	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:408:PRO:HG2	2:D:416:ILE:HD11	2.01	0.41
2:G:347:THR:O	2:G:350:ILE:HG13	2.21	0.41
1:H:506:LYS:O	1:H:510:ILE:HG12	2.21	0.41
2:I:175:VAL:HG22	2:I:176:PRO:HD2	2.01	0.41
2:I:280:ARG:HG2	2:I:285:ILE:HD13	2.03	0.41
2:I:347:THR:O	2:I:350:ILE:HG13	2.21	0.41
1:K:407:PHE:HB3	3:K:802:BTI:N2	2.35	0.41
1:J:186:PRO:HG3	1:H:527:TRP:CH2	2.55	0.41
1:J:201:MET:HB2	1:J:201:MET:HE2	1.87	0.41
2:E:49:ILE:HG23	2:E:123:GLN:HE22	1.85	0.41
2:E:86:SER:O	2:E:89:VAL:HG12	2.21	0.41
2:E:336:MET:SD	2:E:337:ASN:N	2.94	0.41
2:E:402:LEU:HD11	2:E:422:GLN:HA	2.03	0.41
2:E:543:ARG:HG2	1:A:539:LEU:HD21	2.02	0.41
2:B:350:ILE:HG22	2:B:378:GLN:O	2.21	0.41
2:G:513:LEU:HD22	2:G:585:VAL:HG12	2.03	0.41
2:E:456:ARG:HH22	2:E:625:GLY:N	2.19	0.41
1:A:65:LEU:HD23	1:A:65:LEU:HA	1.80	0.41
2:B:513:LEU:HD22	2:B:585:VAL:HG12	2.03	0.41
1:C:179:PRO:O	1:F:512:LYS:NZ	2.40	0.41
1:C:424:LYS:HD3	1:H:563:MET:HE1	1.95	0.41
2:D:280:ARG:HG2	2:D:285:ILE:HD13	2.03	0.41
2:D:336:MET:SD	2:D:337:ASN:N	2.94	0.41
2:D:695:LYS:NZ	2:D:715:GLU:OE1	2.34	0.41
1:F:506:LYS:O	1:F:510:ILE:HG12	2.21	0.41
2:G:152:PRO:HB3	2:G:315:TYR:CE1	2.53	0.41
2:I:408:PRO:HG2	2:I:416:ILE:HD11	2.02	0.41
2:I:694:VAL:HG13	2:I:712:VAL:CG1	2.49	0.41
1:K:408:MET:HE3	2:L:653:MET:HG3	1.95	0.41
1:K:506:LYS:O	1:K:510:ILE:HG12	2.21	0.41
1:J:233:VAL:HG11	1:J:236:GLN:HG2	2.03	0.41
1:J:407:PHE:HE2	1:J:418:ILE:CG1	2.34	0.41
1:A:324:ASN:HD22	1:A:327:ARG:NE	2.19	0.41
2:B:336:MET:SD	2:B:337:ASN:N	2.94	0.41
2:B:456:ARG:HH22	2:B:625:GLY:N	2.19	0.41
2:B:543:ARG:HG2	1:C:539:LEU:HD21	2.02	0.41
1:C:154:LEU:HD23	1:C:154:LEU:HA	1.92	0.41
1:C:294:LEU:HD23	1:C:294:LEU:HA	1.82	0.41
2:D:86:SER:O	2:D:89:VAL:HG12	2.21	0.41
1:H:233:VAL:HG11	1:H:236:GLN:HG2	2.03	0.41
1:H:365:TYR:OH	2:L:532:ASP:OD2	2.33	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:336:MET:SD	2:I:337:ASN:N	2.94	0.41
2:I:513:LEU:HD22	2:I:585:VAL:HG12	2.03	0.41
1:K:233:VAL:HG11	1:K:236:GLN:HG2	2.03	0.41
2:L:157:ILE:HG23	2:L:160:MET:HE3	2.02	0.41
1:J:427:ALA:HB2	1:H:226:MET:HE3	2.02	0.41
2:E:274:ARG:HH11	2:E:347:THR:HG21	1.86	0.41
1:A:408:MET:HE3	1:A:409:VAL:H	1.86	0.41
2:B:175:VAL:HG22	2:B:176:PRO:HD2	2.01	0.41
2:B:694:VAL:HG13	2:B:712:VAL:CG1	2.49	0.41
2:D:347:THR:O	2:D:350:ILE:HG13	2.21	0.41
1:H:324:ASN:HD22	1:H:327:ARG:NE	2.19	0.41
2:I:350:ILE:HG22	2:I:378:GLN:O	2.21	0.41
1:K:65:LEU:HD23	1:K:65:LEU:HA	1.80	0.41
2:L:456:ARG:HH22	2:L:625:GLY:N	2.19	0.41
1:J:506:LYS:O	1:J:510:ILE:HG12	2.21	0.40
2:E:175:VAL:HG22	2:E:176:PRO:HD2	2.01	0.40
2:E:350:ILE:HG22	2:E:378:GLN:O	2.21	0.40
1:C:324:ASN:HD22	1:C:327:ARG:NE	2.19	0.40
1:C:407:PHE:HE2	1:C:418:ILE:CG1	2.34	0.40
1:C:427:ALA:HB2	1:F:226:MET:HE1	2.03	0.40
2:D:350:ILE:HG22	2:D:378:GLN:O	2.21	0.40
1:F:377:PHE:HE1	1:F:408:MET:HE2	1.86	0.40
2:G:49:ILE:HG22	2:G:73:VAL:HG11	2.01	0.40
1:H:154:LEU:HD23	1:H:154:LEU:HA	1.91	0.40
2:I:86:SER:O	2:I:89:VAL:HG12	2.21	0.40
2:L:402:LEU:HD11	2:L:422:GLN:HA	2.03	0.40
2:L:513:LEU:HD22	2:L:585:VAL:HG12	2.03	0.40
1:J:97:PHE:CZ	1:J:122:GLY:HA3	2.57	0.40
1:J:324:ASN:HD22	1:J:327:ARG:NE	2.19	0.40
1:F:324:ASN:HD22	1:F:327:ARG:NE	2.19	0.40
2:G:274:ARG:HH11	2:G:347:THR:HG21	1.86	0.40
2:I:274:ARG:HH11	2:I:347:THR:HG21	1.86	0.40
1:K:97:PHE:CZ	1:K:122:GLY:HA3	2.57	0.40
2:L:49:ILE:HG23	2:L:123:GLN:HE22	1.86	0.40
2:L:152:PRO:HB3	2:L:315:TYR:CE1	2.53	0.40
2:L:280:ARG:HG2	2:L:285:ILE:HD13	2.03	0.40
2:L:637:LEU:HD23	2:L:637:LEU:HA	1.95	0.40
1:J:241:LEU:HD11	3:H:802:BTI:N3	2.37	0.40
2:E:402:LEU:HD13	2:E:405:LEU:HD23	2.04	0.40
2:E:476:HIS:CE1	2:E:478:GLU:HB2	2.57	0.40
2:G:336:MET:SD	2:G:337:ASN:N	2.94	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:350:ILE:HG22	2:G:378:GLN:O	2.21	0.40
2:G:543:ARG:HG2	1:K:539:LEU:HD21	2.02	0.40
2:L:257:GLU:N	2:L:257:GLU:OE1	2.54	0.40
1:J:229:GLU:OE2	1:J:275:HIS:NE2	2.38	0.40
2:B:483:ASN:OD1	2:B:483:ASN:N	2.49	0.40
2:B:659:LYS:HB2	2:B:659:LYS:HE2	1.94	0.40
2:D:513:LEU:HD22	2:D:585:VAL:HG12	2.03	0.40
1:F:233:VAL:HG11	1:F:236:GLN:HG2	2.02	0.40
2:G:456:ARG:HH22	2:G:625:GLY:N	2.19	0.40
2:I:49:ILE:HG23	2:I:123:GLN:HE22	1.86	0.40
1:J:527:TRP:CH2	1:H:186:PRO:HG3	2.56	0.40
2:E:257:GLU:OE1	2:E:257:GLU:N	2.54	0.40
1:C:97:PHE:CZ	1:C:122:GLY:HA3	2.57	0.40
1:C:241:LEU:HD11	3:F:802:BTI:N3	2.36	0.40
2:D:274:ARG:HH11	2:D:347:THR:HG21	1.86	0.40
1:F:97:PHE:CZ	1:F:122:GLY:HA3	2.57	0.40
2:G:280:ARG:HG2	2:G:285:ILE:HD13	2.03	0.40
2:I:402:LEU:HD11	2:I:422:GLN:HA	2.03	0.40
2:I:657:ILE:HD11	2:I:705:ALA:HB2	2.04	0.40
2:L:274:ARG:HH11	2:L:347:THR:HG21	1.86	0.40
2:L:350:ILE:HG22	2:L:378:GLN:O	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [\(i\)](#)

### 5.3.1 Protein backbone [\(i\)](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	539/563 (96%)	521 (97%)	18 (3%)	0	100	100
1	C	539/563 (96%)	521 (97%)	18 (3%)	0	100	100
1	F	539/563 (96%)	521 (97%)	18 (3%)	0	100	100
1	H	539/563 (96%)	521 (97%)	18 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	J	539/563 (96%)	521 (97%)	18 (3%)	0	100	100
1	K	539/563 (96%)	521 (97%)	18 (3%)	0	100	100
2	B	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
2	D	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
2	E	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
2	G	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
2	I	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
2	L	606/725 (84%)	589 (97%)	17 (3%)	0	100	100
All	All	6870/7728 (89%)	6660 (97%)	210 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	430/445 (97%)	429 (100%)	1 (0%)	93	96
1	C	430/445 (97%)	429 (100%)	1 (0%)	93	96
1	F	430/445 (97%)	429 (100%)	1 (0%)	93	96
1	H	430/445 (97%)	429 (100%)	1 (0%)	93	96
1	J	430/445 (97%)	429 (100%)	1 (0%)	93	96
1	K	430/445 (97%)	428 (100%)	2 (0%)	88	92
2	B	513/609 (84%)	506 (99%)	7 (1%)	67	80
2	D	513/609 (84%)	507 (99%)	6 (1%)	71	83
2	E	513/609 (84%)	506 (99%)	7 (1%)	67	80
2	G	513/609 (84%)	506 (99%)	7 (1%)	67	80
2	I	513/609 (84%)	506 (99%)	7 (1%)	67	80
2	L	513/609 (84%)	506 (99%)	7 (1%)	67	80
All	All	5658/6324 (90%)	5610 (99%)	48 (1%)	82	89

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	J	525	ARG
2	E	65	MET
2	E	140	GLU
2	E	160	MET
2	E	387	TYR
2	E	424	ASP
2	E	489	ILE
2	E	675	MET
1	A	525	ARG
2	B	65	MET
2	B	140	GLU
2	B	160	MET
2	B	387	TYR
2	B	424	ASP
2	B	489	ILE
2	B	675	MET
1	C	525	ARG
2	D	65	MET
2	D	140	GLU
2	D	160	MET
2	D	424	ASP
2	D	489	ILE
2	D	675	MET
1	F	525	ARG
2	G	65	MET
2	G	140	GLU
2	G	160	MET
2	G	387	TYR
2	G	424	ASP
2	G	489	ILE
2	G	675	MET
1	H	525	ARG
2	I	65	MET
2	I	140	GLU
2	I	160	MET
2	I	387	TYR
2	I	424	ASP
2	I	489	ILE
2	I	675	MET
1	K	408	MET
1	K	525	ARG
2	L	65	MET

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Mol	Chain	Res	Type
2	L	140	GLU
2	L	160	MET
2	L	387	TYR
2	L	424	ASP
2	L	489	ILE
2	L	675	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
2	E	123	GLN
2	E	255	HIS
2	E	476	HIS
2	E	492	HIS
2	B	123	GLN
2	B	255	HIS
2	B	476	HIS
2	D	123	GLN
2	D	255	HIS
2	D	476	HIS
2	G	123	GLN
2	G	255	HIS
2	G	476	HIS
2	I	123	GLN
2	I	255	HIS
2	I	476	HIS
2	L	123	GLN
2	L	255	HIS
2	L	476	HIS
2	L	492	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

12 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	TW3	F	801	-	47,56,56	0.55	0	60,83,83	1.46	6 (10%)
3	BTI	K	802	-	16,16,16	0.43	0	21,21,21	1.27	3 (14%)
4	TW3	H	801	-	47,56,56	0.56	0	60,83,83	1.46	6 (10%)
4	TW3	K	801	-	47,56,56	0.56	0	60,83,83	1.45	6 (10%)
3	BTI	J	800	-	16,16,16	0.42	0	21,21,21	1.26	3 (14%)
4	TW3	C	801	-	47,56,56	0.55	0	60,83,83	1.45	6 (10%)
3	BTI	F	802	-	16,16,16	0.42	0	21,21,21	1.26	3 (14%)
4	TW3	J	801	-	47,56,56	0.56	0	60,83,83	1.45	5 (8%)
3	BTI	H	802	-	16,16,16	0.43	0	21,21,21	1.26	3 (14%)
4	TW3	A	801	-	47,56,56	0.56	0	60,83,83	1.45	5 (8%)
3	BTI	C	800	-	16,16,16	0.42	0	21,21,21	1.26	3 (14%)
3	BTI	A	800	-	16,16,16	0.42	0	21,21,21	1.26	3 (14%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	TW3	F	801	-	-	13/50/71/71	0/3/3/3
3	BTI	K	802	-	-	0/5/27/27	0/2/2/2
4	TW3	H	801	-	-	13/50/71/71	0/3/3/3
4	TW3	K	801	-	-	13/50/71/71	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	BTI	J	800	-	-	0/5/27/27	0/2/2/2
4	TW3	C	801	-	-	13/50/71/71	0/3/3/3
3	BTI	F	802	-	-	0/5/27/27	0/2/2/2
4	TW3	J	801	-	-	13/50/71/71	0/3/3/3
3	BTI	H	802	-	-	0/5/27/27	0/2/2/2
4	TW3	A	801	-	-	13/50/71/71	0/3/3/3
3	BTI	C	800	-	-	0/5/27/27	0/2/2/2
3	BTI	A	800	-	-	0/5/27/27	0/2/2/2

There are no bond length outliers.

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	801	TW3	C4-C5-S1	8.02	121.25	111.24
4	H	801	TW3	C4-C5-S1	8.01	121.24	111.24
4	C	801	TW3	C4-C5-S1	8.00	121.23	111.24
4	K	801	TW3	C4-C5-S1	8.00	121.23	111.24
4	J	801	TW3	C4-C5-S1	8.00	121.22	111.24
4	A	801	TW3	C4-C5-S1	7.99	121.21	111.24
3	K	802	BTI	C6-S1-C2	-3.69	82.31	89.89
3	A	800	BTI	C6-S1-C2	-3.68	82.33	89.89
3	H	802	BTI	C6-S1-C2	-3.67	82.35	89.89
3	F	802	BTI	C6-S1-C2	-3.67	82.35	89.89
3	C	800	BTI	C6-S1-C2	-3.67	82.35	89.89
3	J	800	BTI	C6-S1-C2	-3.67	82.36	89.89
4	H	801	TW3	O12-C19-C25	-3.41	101.94	106.93
4	A	801	TW3	O12-C19-C25	-3.39	101.98	106.93
4	C	801	TW3	O12-C19-C25	-3.38	101.99	106.93
4	K	801	TW3	O12-C19-C25	-3.38	101.99	106.93
4	J	801	TW3	O12-C19-C25	-3.37	102.00	106.93
4	F	801	TW3	O12-C19-C25	-3.37	102.01	106.93
3	F	802	BTI	C6-C5-C4	-3.06	106.00	108.66
3	K	802	BTI	C6-C5-C4	-3.06	106.01	108.66
3	J	800	BTI	C6-C5-C4	-3.04	106.02	108.66
3	H	802	BTI	C6-C5-C4	-3.04	106.02	108.66
3	C	800	BTI	C6-C5-C4	-3.03	106.03	108.66
3	A	800	BTI	C6-C5-C4	-2.98	106.07	108.66
4	C	801	TW3	O1-C5-S1	-2.93	116.09	122.64
4	F	801	TW3	O1-C5-S1	-2.91	116.13	122.64
4	J	801	TW3	O1-C5-S1	-2.91	116.13	122.64
4	K	801	TW3	O1-C5-S1	-2.91	116.14	122.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	801	TW3	O1-C5-S1	-2.91	116.15	122.64
4	H	801	TW3	O1-C5-S1	-2.90	116.15	122.64
3	A	800	BTI	C2-C4-C5	-2.88	105.60	108.94
3	F	802	BTI	C2-C4-C5	-2.86	105.61	108.94
3	C	800	BTI	C2-C4-C5	-2.86	105.62	108.94
3	K	802	BTI	C2-C4-C5	-2.86	105.62	108.94
3	J	800	BTI	C2-C4-C5	-2.86	105.62	108.94
3	H	802	BTI	C2-C4-C5	-2.85	105.62	108.94
4	H	801	TW3	O1-C5-C4	-2.36	122.61	125.50
4	F	801	TW3	O1-C5-C4	-2.35	122.62	125.50
4	K	801	TW3	O1-C5-C4	-2.34	122.63	125.50
4	A	801	TW3	O1-C5-C4	-2.33	122.64	125.50
4	J	801	TW3	O1-C5-C4	-2.33	122.65	125.50
4	C	801	TW3	O1-C5-C4	-2.30	122.68	125.50
4	J	801	TW3	C21-C22-N5	2.23	123.74	120.35
4	F	801	TW3	C21-C22-N5	2.23	123.74	120.35
4	C	801	TW3	C21-C22-N5	2.23	123.74	120.35
4	K	801	TW3	C21-C22-N5	2.22	123.73	120.35
4	A	801	TW3	C21-C22-N5	2.21	123.72	120.35
4	H	801	TW3	C21-C22-N5	2.21	123.72	120.35
4	K	801	TW3	C5-C4-C2	2.01	130.30	126.42
4	F	801	TW3	C5-C4-C2	2.01	130.30	126.42
4	C	801	TW3	C5-C4-C2	2.01	130.29	126.42
4	H	801	TW3	C5-C4-C2	2.00	130.28	126.42

There are no chirality outliers.

All (78) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	J	801	TW3	N2-C11-C12-C13
4	J	801	TW3	N2-C11-C12-O4
4	J	801	TW3	O3-C11-C12-C13
4	J	801	TW3	O3-C11-C12-O4
4	J	801	TW3	C18-C17-O11-P2
4	J	801	TW3	P2-O8-P1-O5
4	J	801	TW3	P1-O8-P2-O11
4	A	801	TW3	N2-C11-C12-C13
4	A	801	TW3	N2-C11-C12-O4
4	A	801	TW3	O3-C11-C12-C13
4	A	801	TW3	O3-C11-C12-O4
4	A	801	TW3	C18-C17-O11-P2
4	A	801	TW3	P2-O8-P1-O5

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Mol	Chain	Res	Type	Atoms
4	A	801	TW3	P1-O8-P2-O11
4	C	801	TW3	N2-C11-C12-C13
4	C	801	TW3	N2-C11-C12-O4
4	C	801	TW3	O3-C11-C12-C13
4	C	801	TW3	O3-C11-C12-O4
4	C	801	TW3	C18-C17-O11-P2
4	C	801	TW3	P2-O8-P1-O5
4	C	801	TW3	P1-O8-P2-O11
4	F	801	TW3	N2-C11-C12-C13
4	F	801	TW3	N2-C11-C12-O4
4	F	801	TW3	O3-C11-C12-C13
4	F	801	TW3	O3-C11-C12-O4
4	F	801	TW3	C18-C17-O11-P2
4	F	801	TW3	P2-O8-P1-O5
4	F	801	TW3	P1-O8-P2-O11
4	H	801	TW3	N2-C11-C12-C13
4	H	801	TW3	N2-C11-C12-O4
4	H	801	TW3	O3-C11-C12-C13
4	H	801	TW3	O3-C11-C12-O4
4	H	801	TW3	C18-C17-O11-P2
4	H	801	TW3	P2-O8-P1-O5
4	H	801	TW3	P1-O8-P2-O11
4	K	801	TW3	N2-C11-C12-C13
4	K	801	TW3	N2-C11-C12-O4
4	K	801	TW3	O3-C11-C12-C13
4	K	801	TW3	O3-C11-C12-O4
4	K	801	TW3	C18-C17-O11-P2
4	K	801	TW3	P2-O8-P1-O5
4	K	801	TW3	P1-O8-P2-O11
4	J	801	TW3	C18-C26-O14-P3
4	J	801	TW3	C25-C26-O14-P3
4	A	801	TW3	C18-C26-O14-P3
4	A	801	TW3	C25-C26-O14-P3
4	C	801	TW3	C18-C26-O14-P3
4	C	801	TW3	C25-C26-O14-P3
4	F	801	TW3	C18-C26-O14-P3
4	F	801	TW3	C25-C26-O14-P3
4	H	801	TW3	C18-C26-O14-P3
4	H	801	TW3	C25-C26-O14-P3
4	K	801	TW3	C18-C26-O14-P3
4	K	801	TW3	C25-C26-O14-P3
4	J	801	TW3	C17-O11-P2-O10

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Mol	Chain	Res	Type	Atoms
4	A	801	TW3	C17-O11-P2-O10
4	C	801	TW3	C17-O11-P2-O10
4	F	801	TW3	C17-O11-P2-O10
4	H	801	TW3	C17-O11-P2-O10
4	K	801	TW3	C17-O11-P2-O10
4	J	801	TW3	C7-C6-S1-C5
4	A	801	TW3	C7-C6-S1-C5
4	C	801	TW3	C7-C6-S1-C5
4	F	801	TW3	C7-C6-S1-C5
4	H	801	TW3	C7-C6-S1-C5
4	K	801	TW3	C7-C6-S1-C5
4	J	801	TW3	C17-O11-P2-O8
4	A	801	TW3	C17-O11-P2-O8
4	C	801	TW3	C17-O11-P2-O8
4	F	801	TW3	C17-O11-P2-O8
4	H	801	TW3	C17-O11-P2-O8
4	K	801	TW3	C17-O11-P2-O8
4	J	801	TW3	O11-C17-C18-C26
4	A	801	TW3	O11-C17-C18-C26
4	C	801	TW3	O11-C17-C18-C26
4	F	801	TW3	O11-C17-C18-C26
4	H	801	TW3	O11-C17-C18-C26
4	K	801	TW3	O11-C17-C18-C26

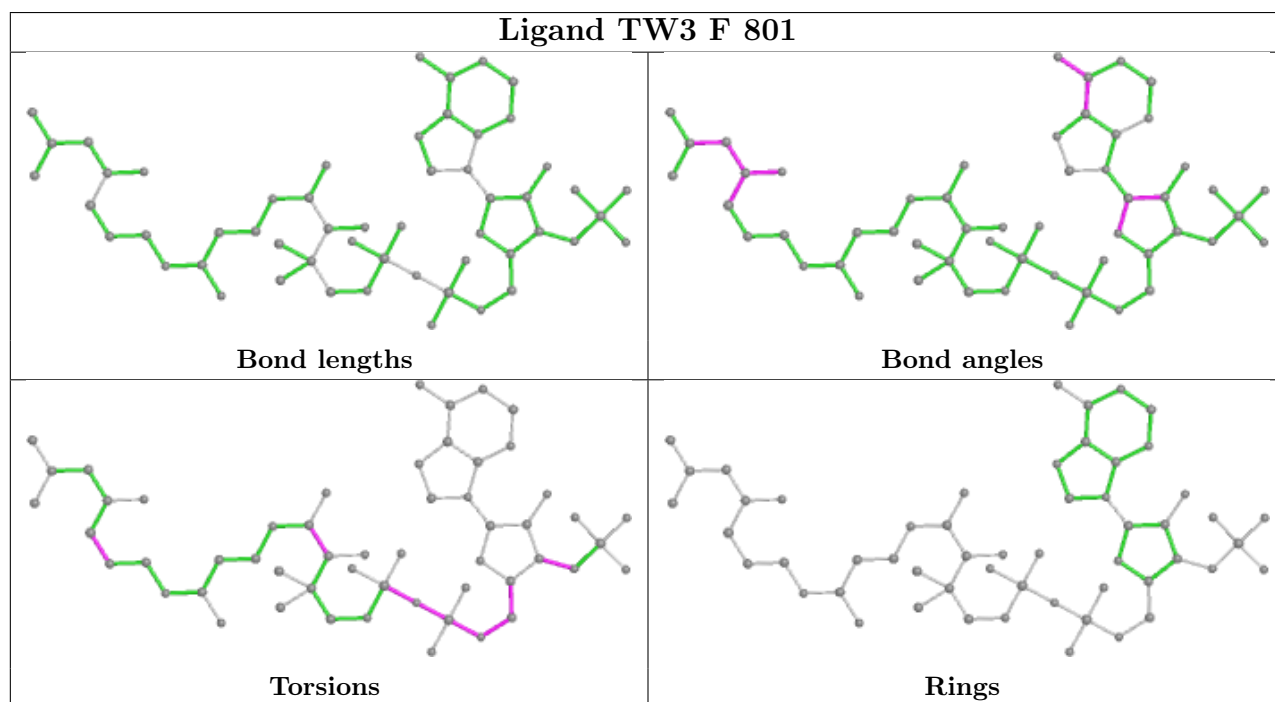
There are no ring outliers.

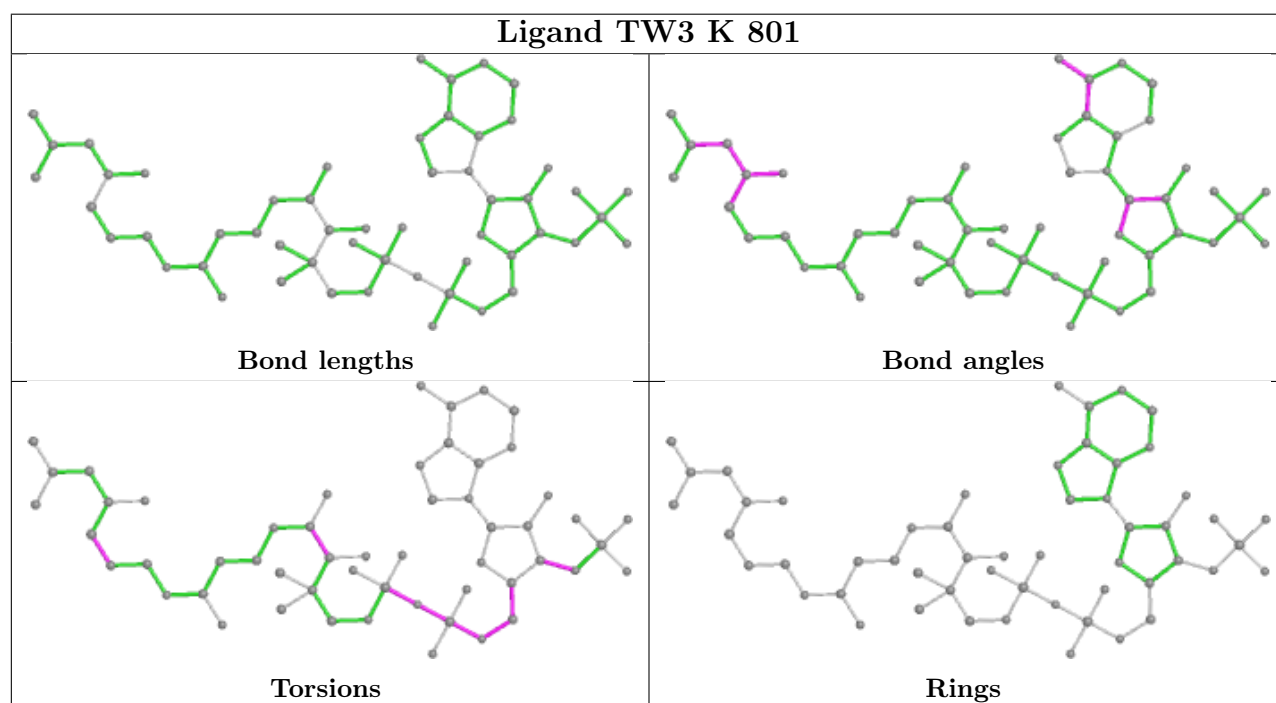
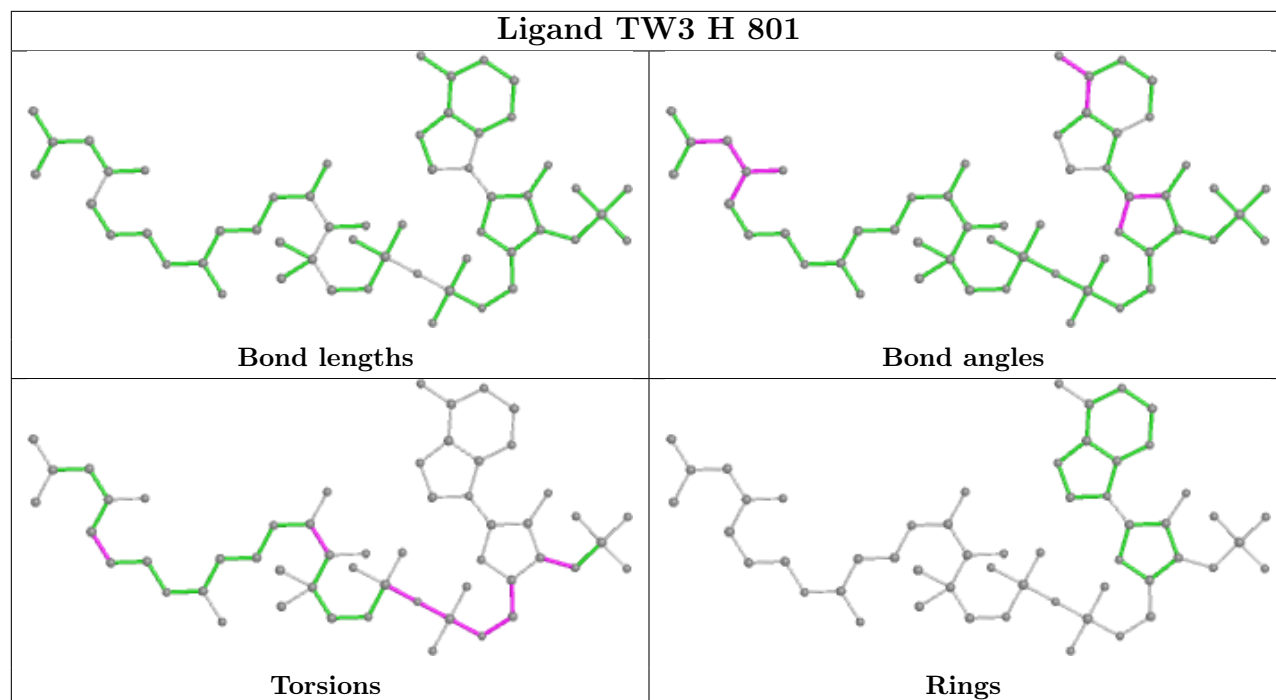
12 monomers are involved in 157 short contacts:

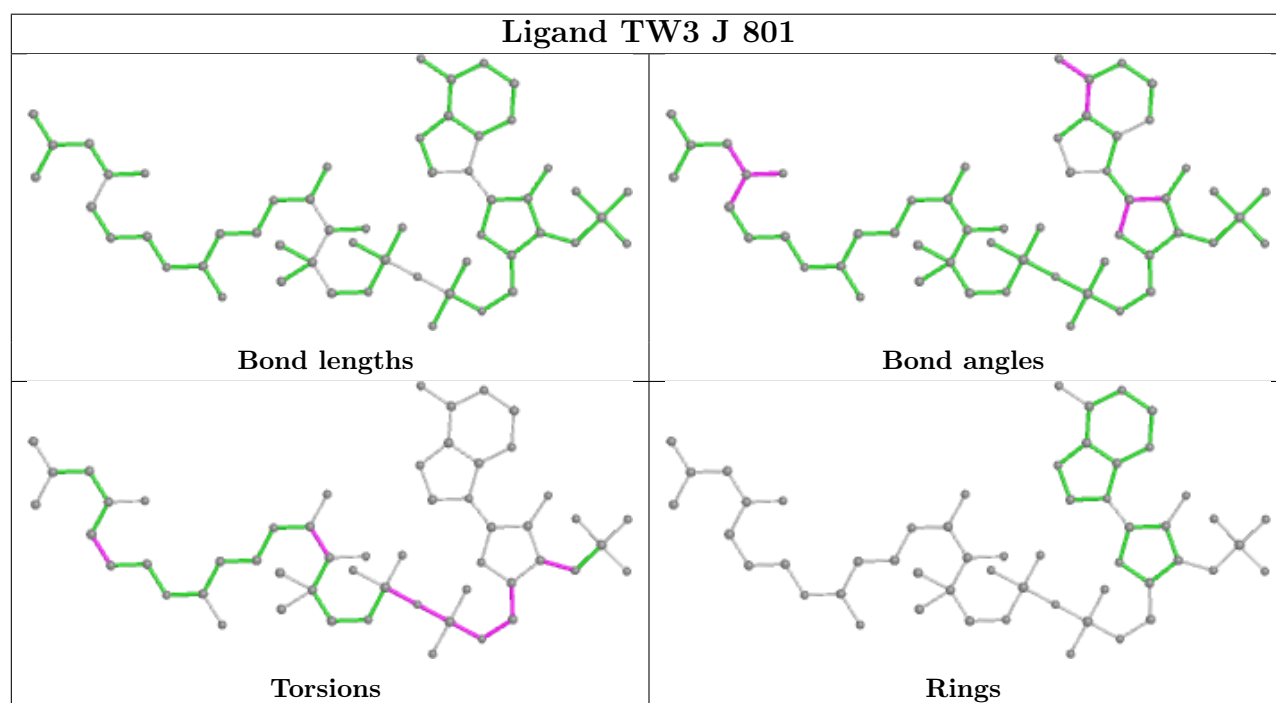
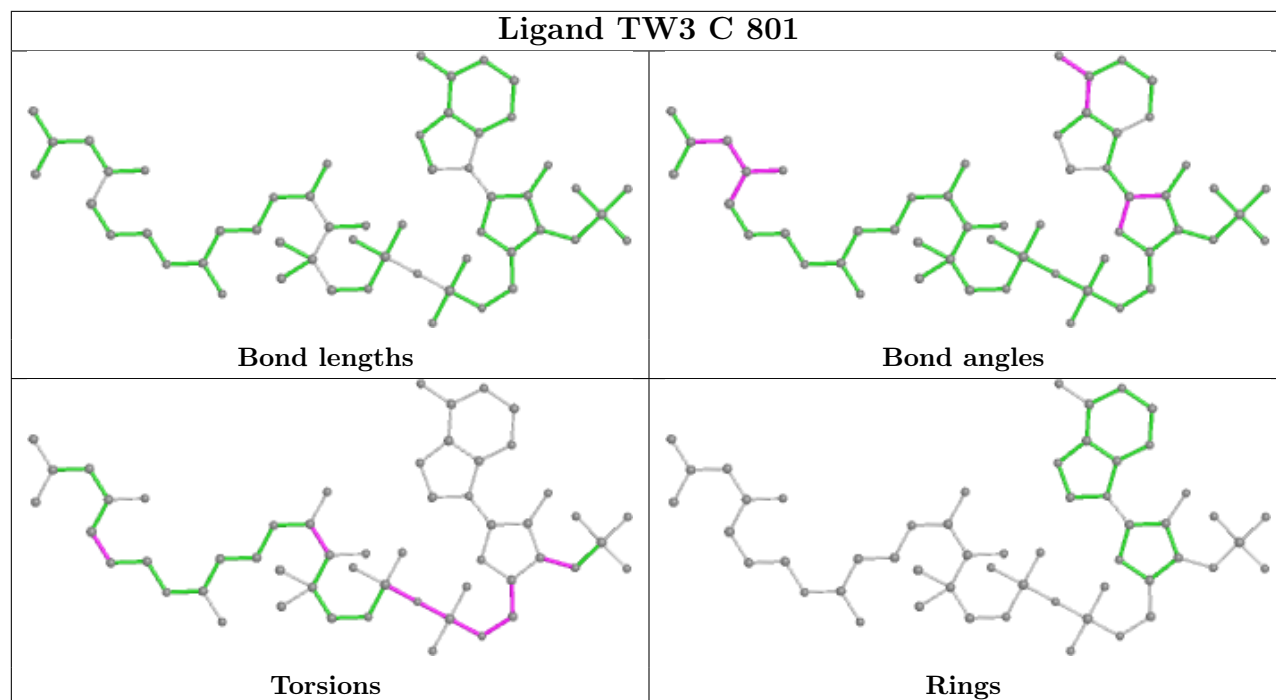
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	801	TW3	11	0
3	K	802	BTI	13	0
4	H	801	TW3	11	0
4	K	801	TW3	11	0
3	J	800	BTI	16	0
4	C	801	TW3	11	0
3	F	802	BTI	17	0
4	J	801	TW3	11	0
3	H	802	BTI	16	0
4	A	801	TW3	11	0
3	C	800	BTI	15	0
3	A	800	BTI	14	0

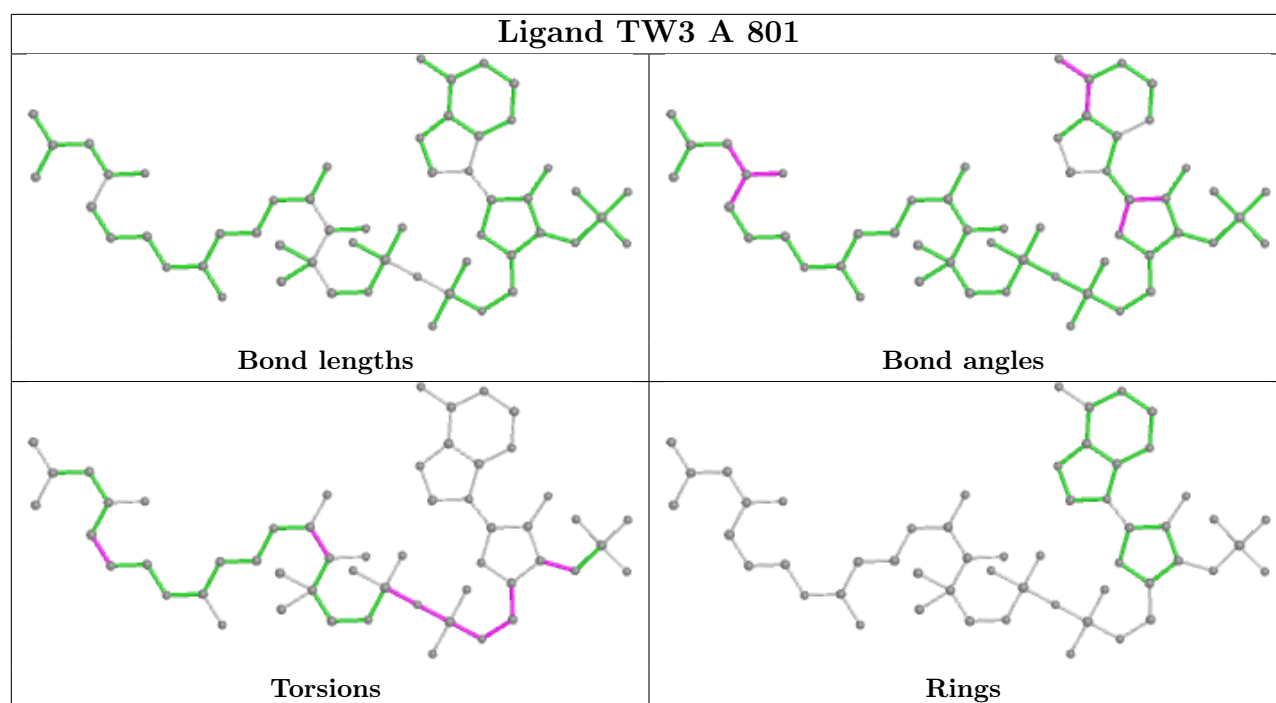
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.



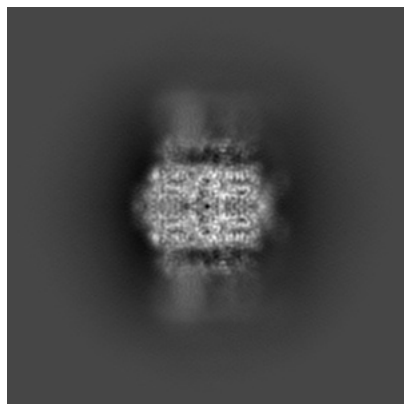
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-35980. These allow visual inspection of the internal detail of the map and identification of artifacts.

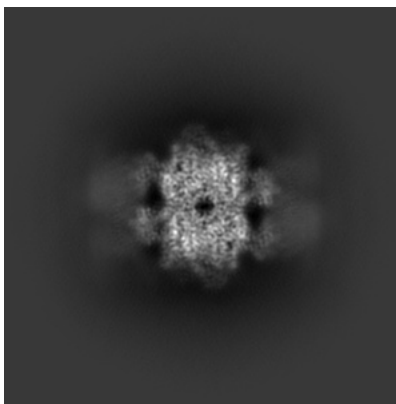
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

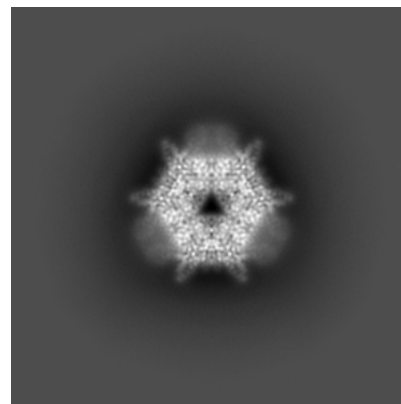
#### 6.1.1 Primary map



X

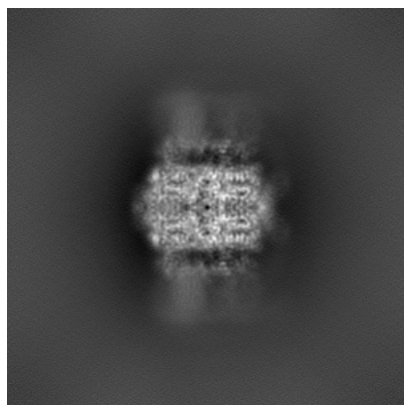


Y

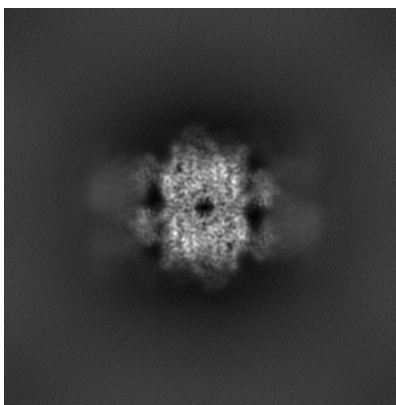


Z

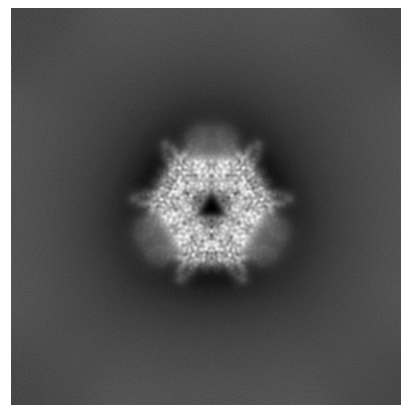
#### 6.1.2 Raw map



X



Y

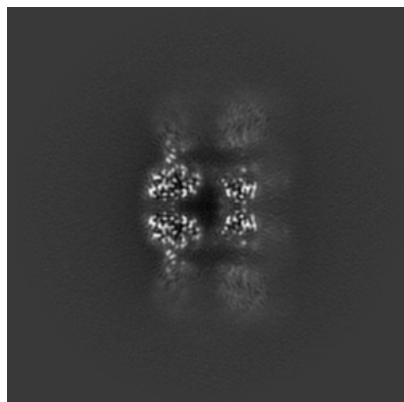


Z

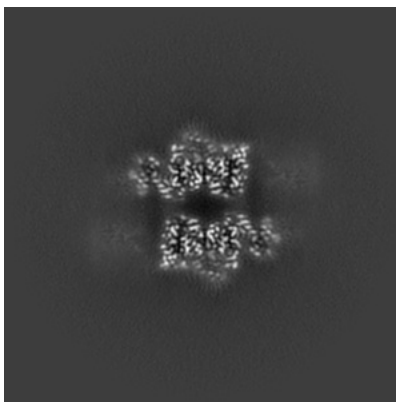
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

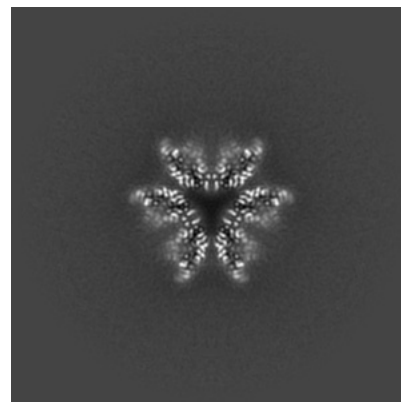
### 6.2.1 Primary map



X Index: 180

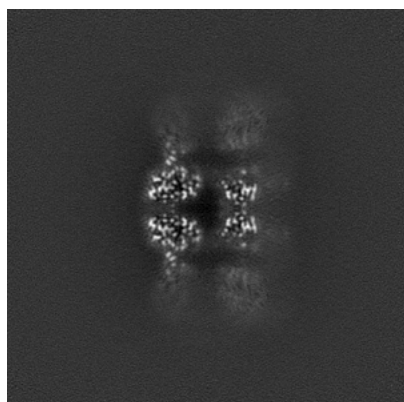


Y Index: 180

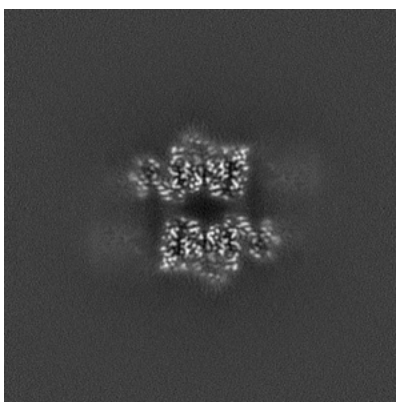


Z Index: 180

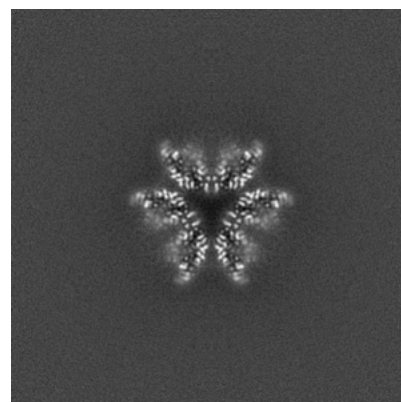
### 6.2.2 Raw map



X Index: 180



Y Index: 180

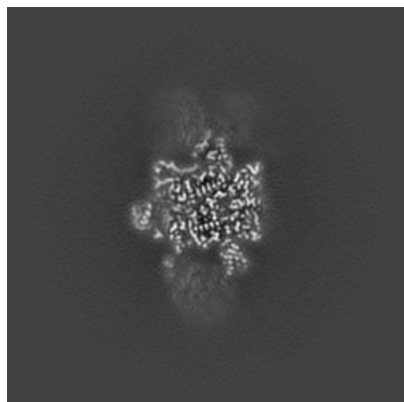


Z Index: 180

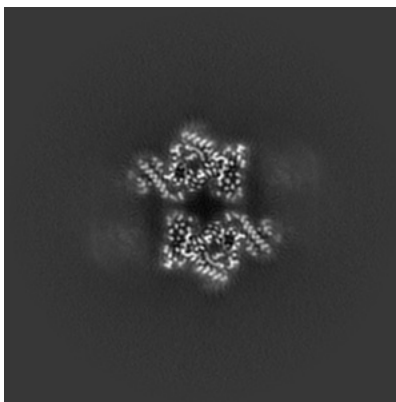
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

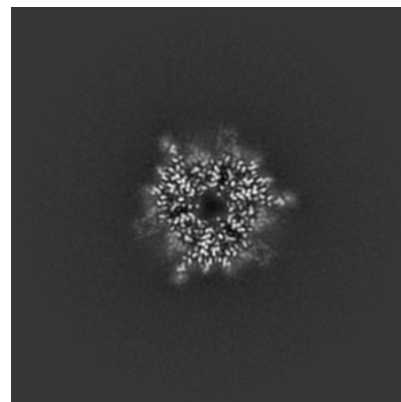
### 6.3.1 Primary map



X Index: 152

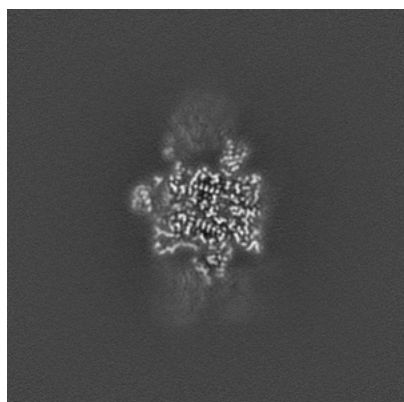


Y Index: 183

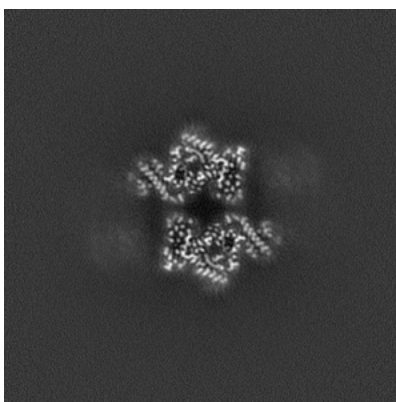


Z Index: 170

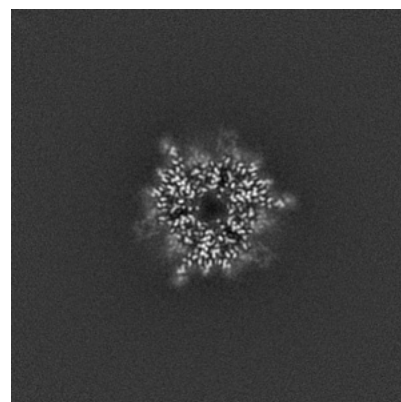
### 6.3.2 Raw map



X Index: 208



Y Index: 183

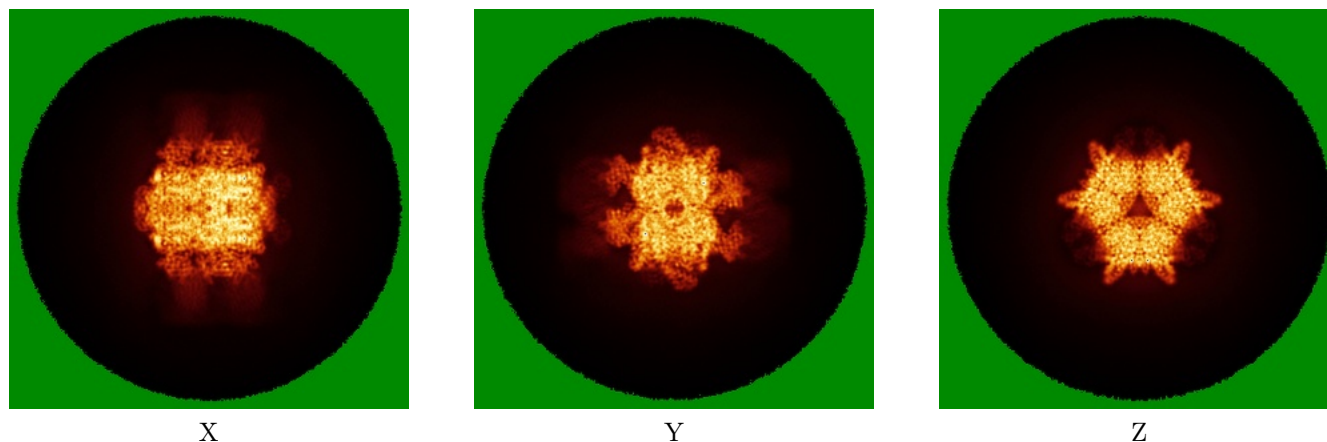


Z Index: 170

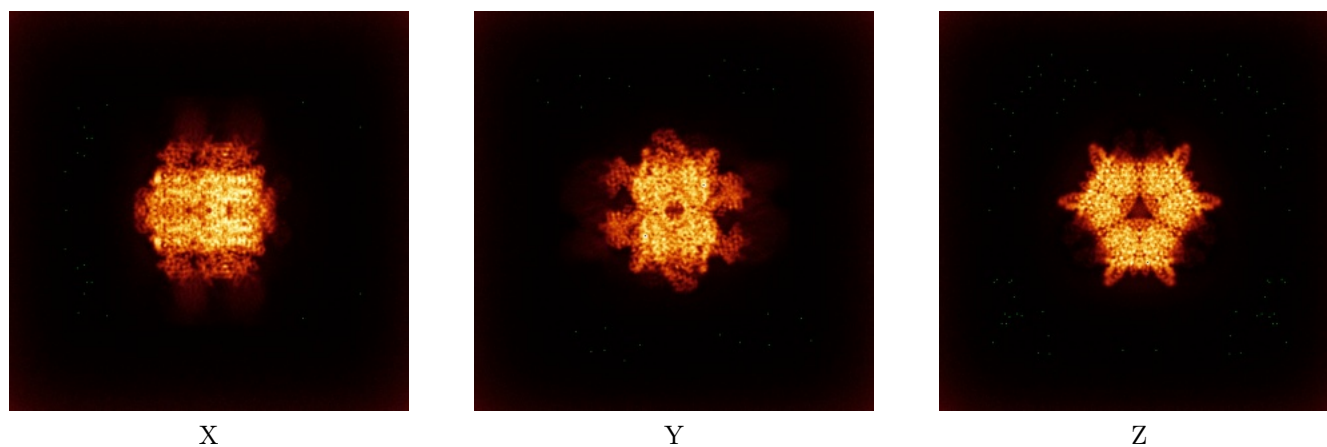
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

### 6.4.1 Primary map



### 6.4.2 Raw map



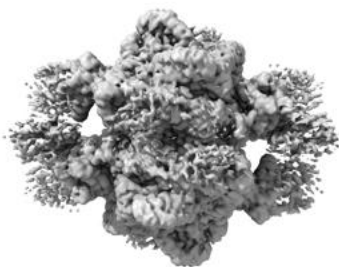
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

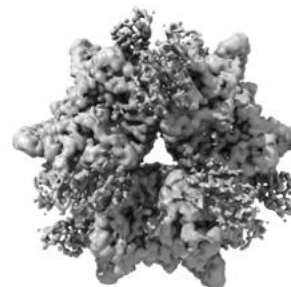
### 6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.092. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

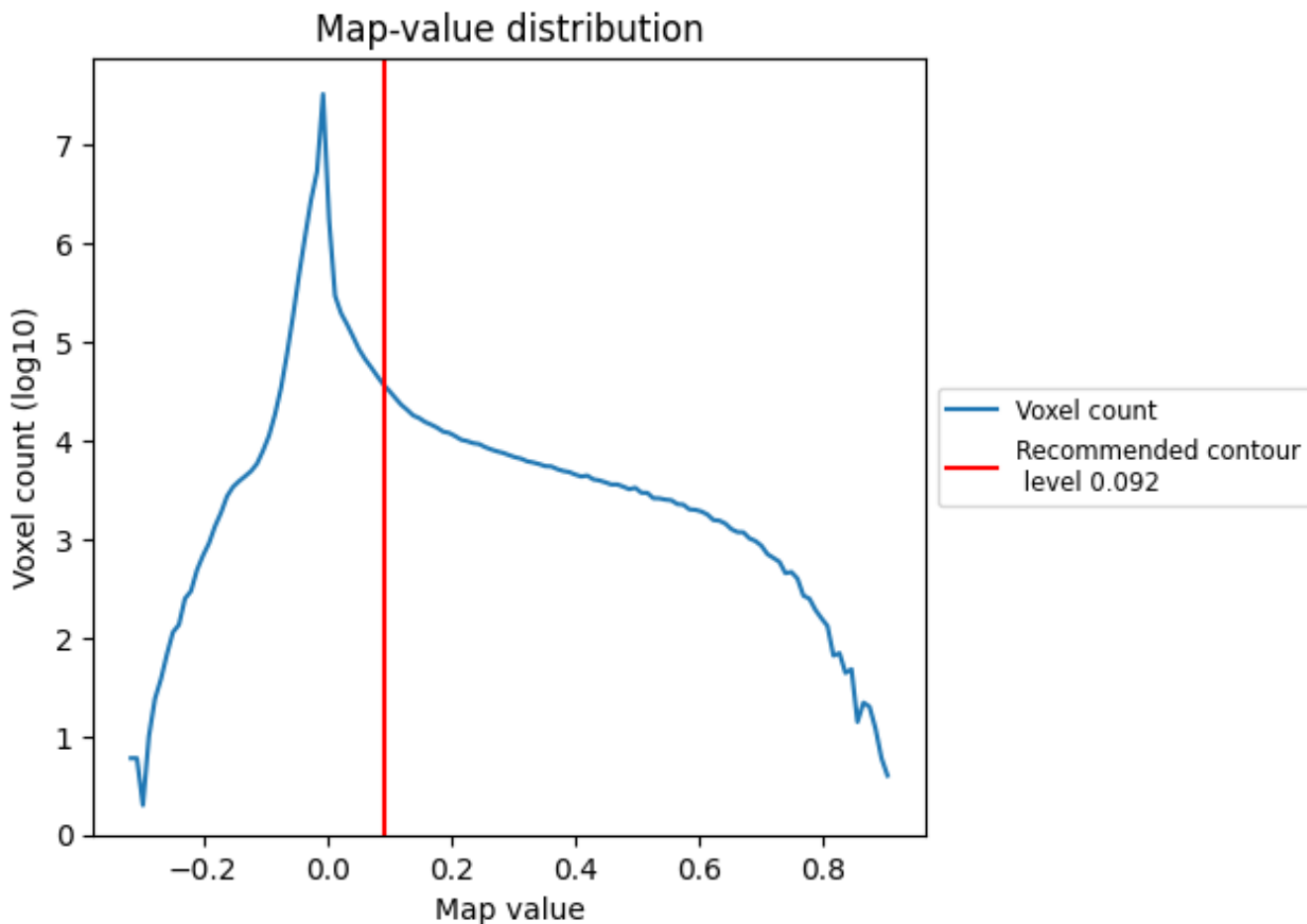
## 6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

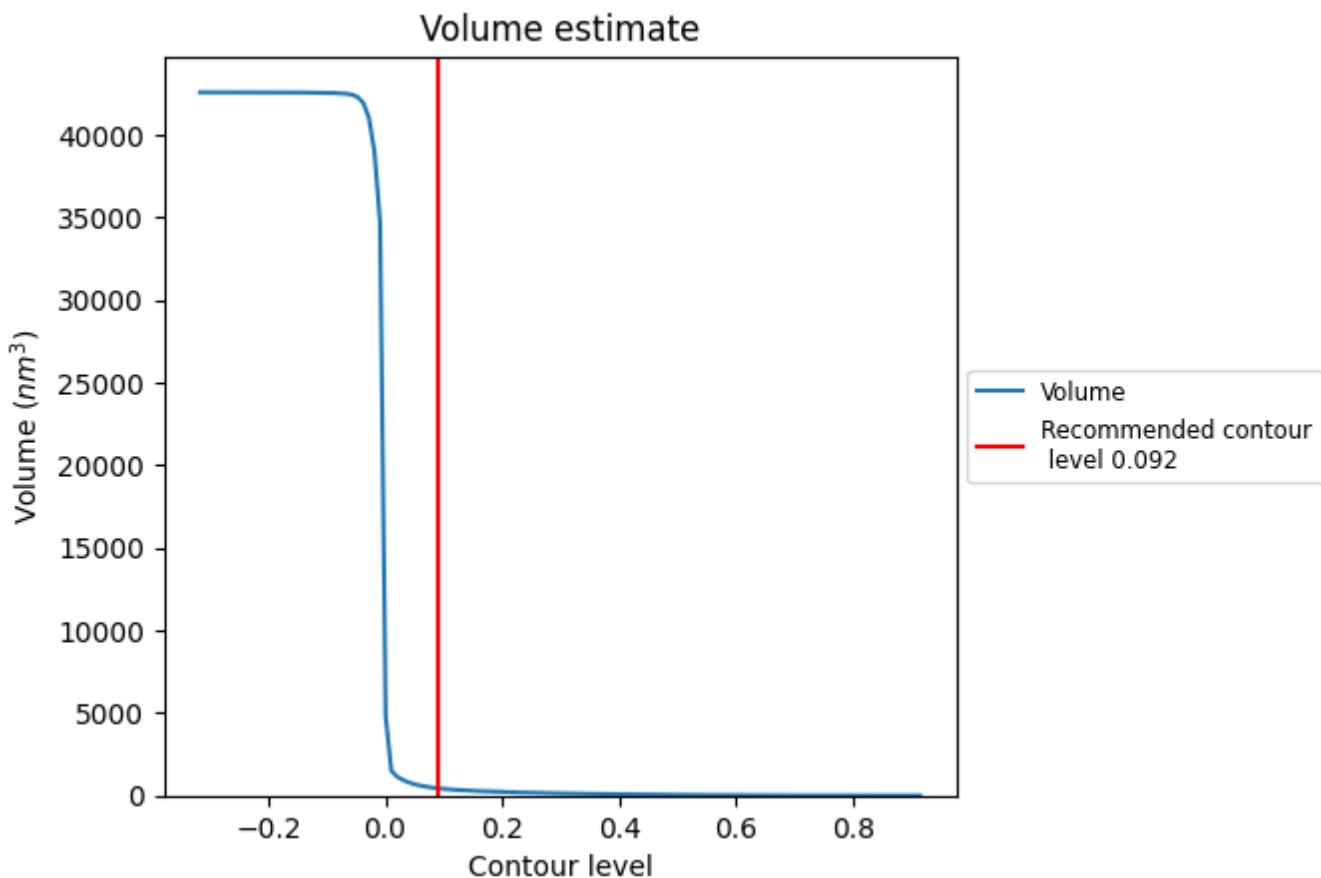
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

## 7.2 Volume estimate [i](#)

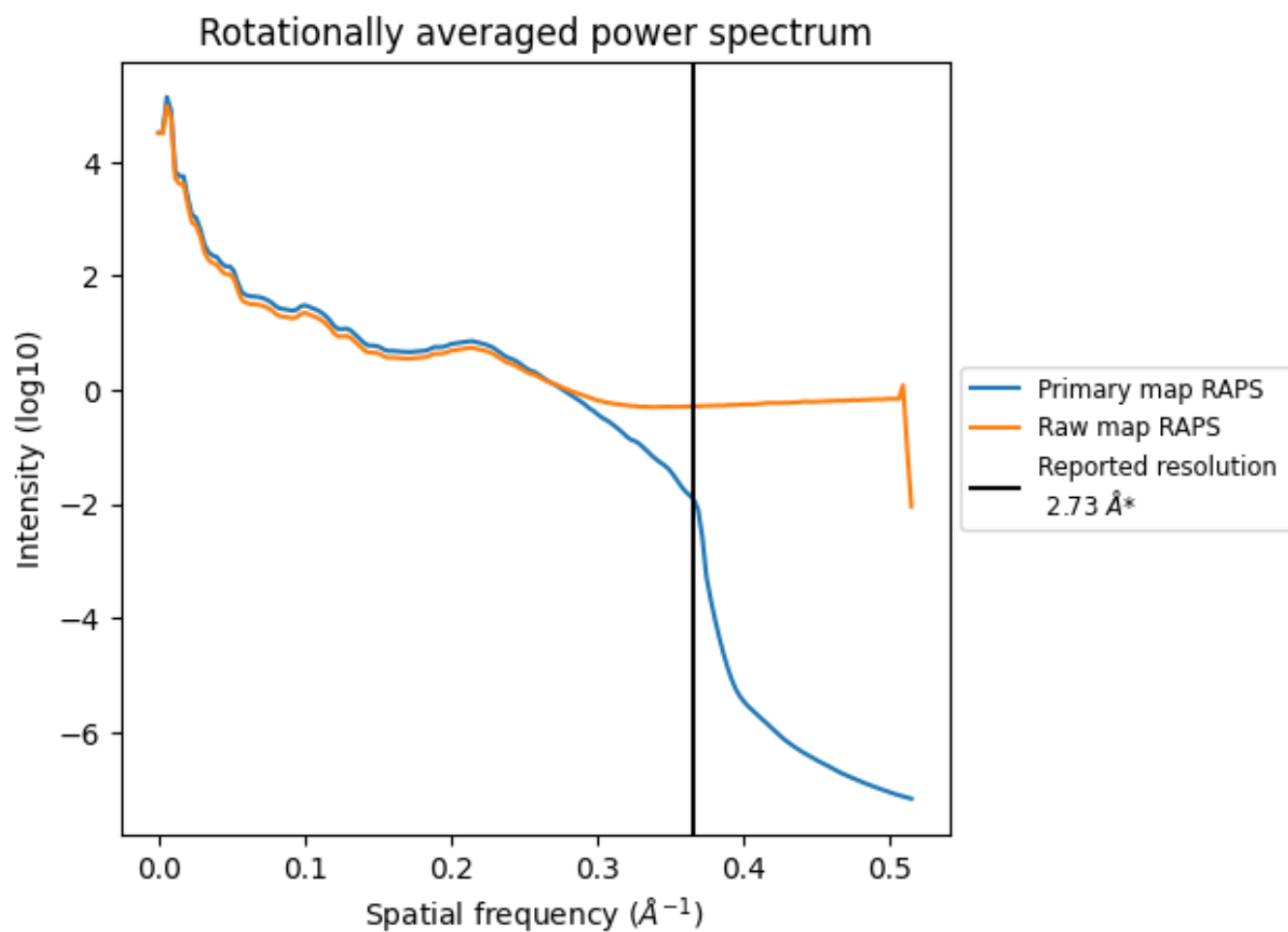


The volume at the recommended contour level is 432 nm<sup>3</sup>; this corresponds to an approximate mass of 390 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.



### 7.3 Rotationally averaged power spectrum i



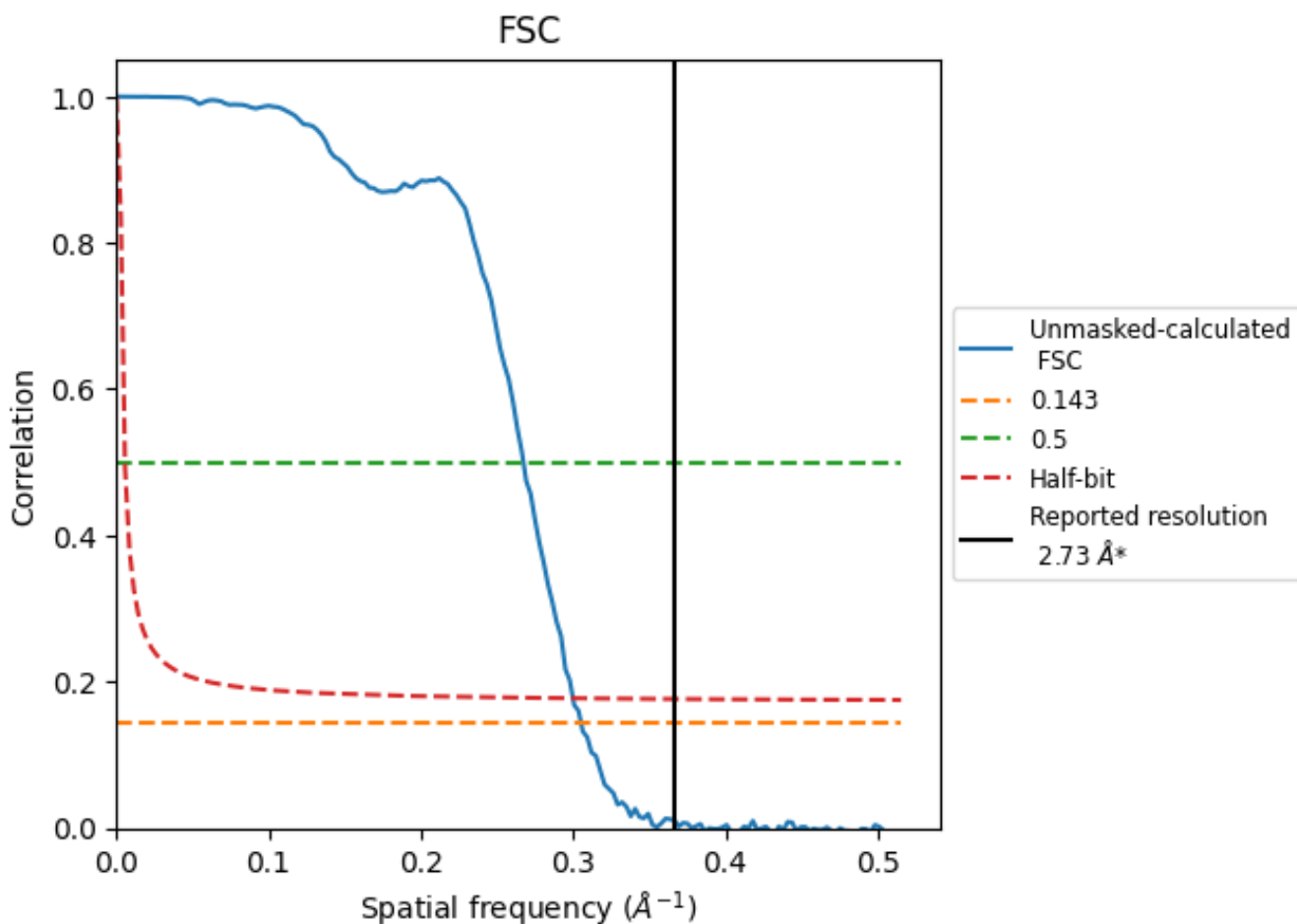
\*Reported resolution corresponds to spatial frequency of 0.366 Å<sup>-1</sup>



## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.366 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

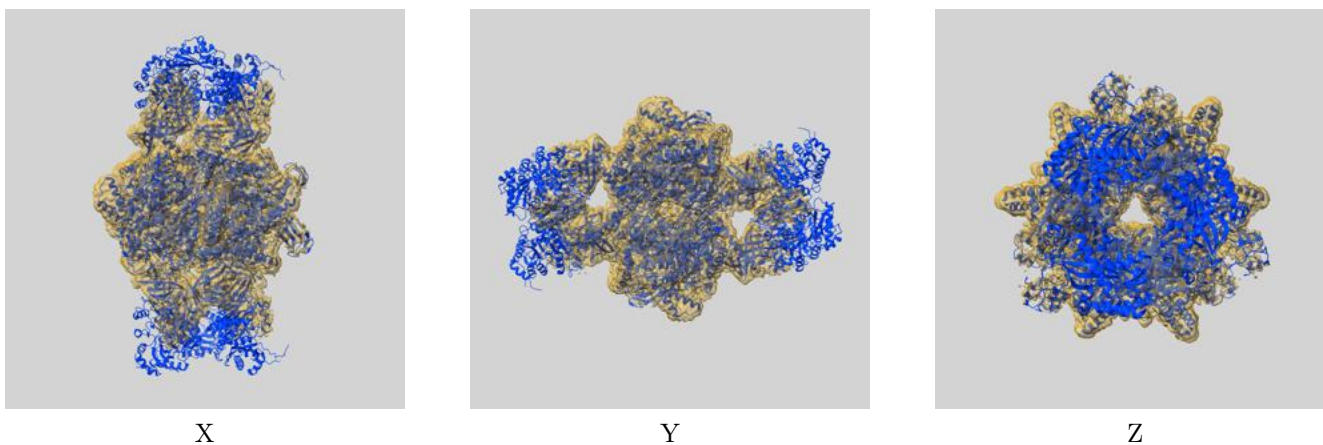
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.73	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.28	3.74	3.33

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.28 differs from the reported value 2.73 by more than 10 %

## 9 Map-model fit [i](#)

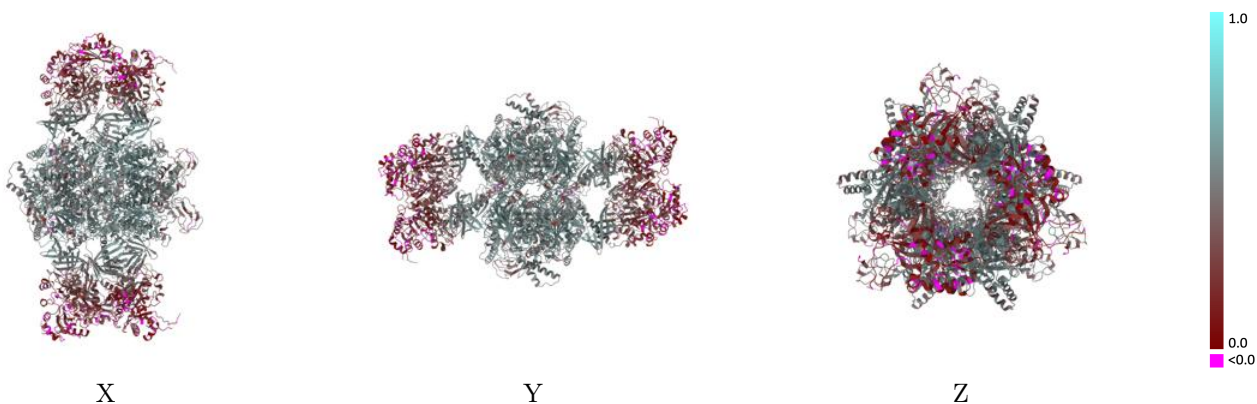
This section contains information regarding the fit between EMDB map EMD-35980 and PDB model 8J4Z. Per-residue inclusion information can be found in section 3 on page 7.

### 9.1 Map-model overlay [i](#)



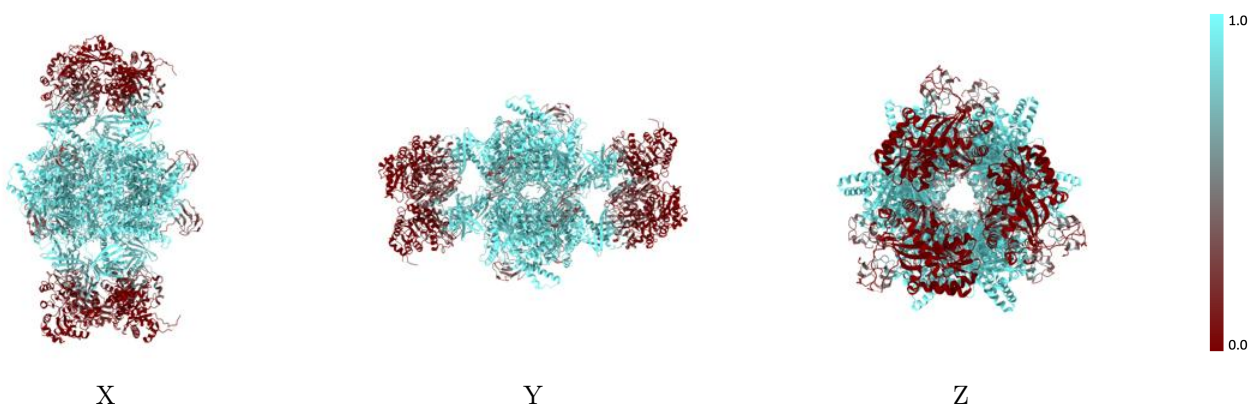
The images above show the 3D surface view of the map at the recommended contour level 0.092 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



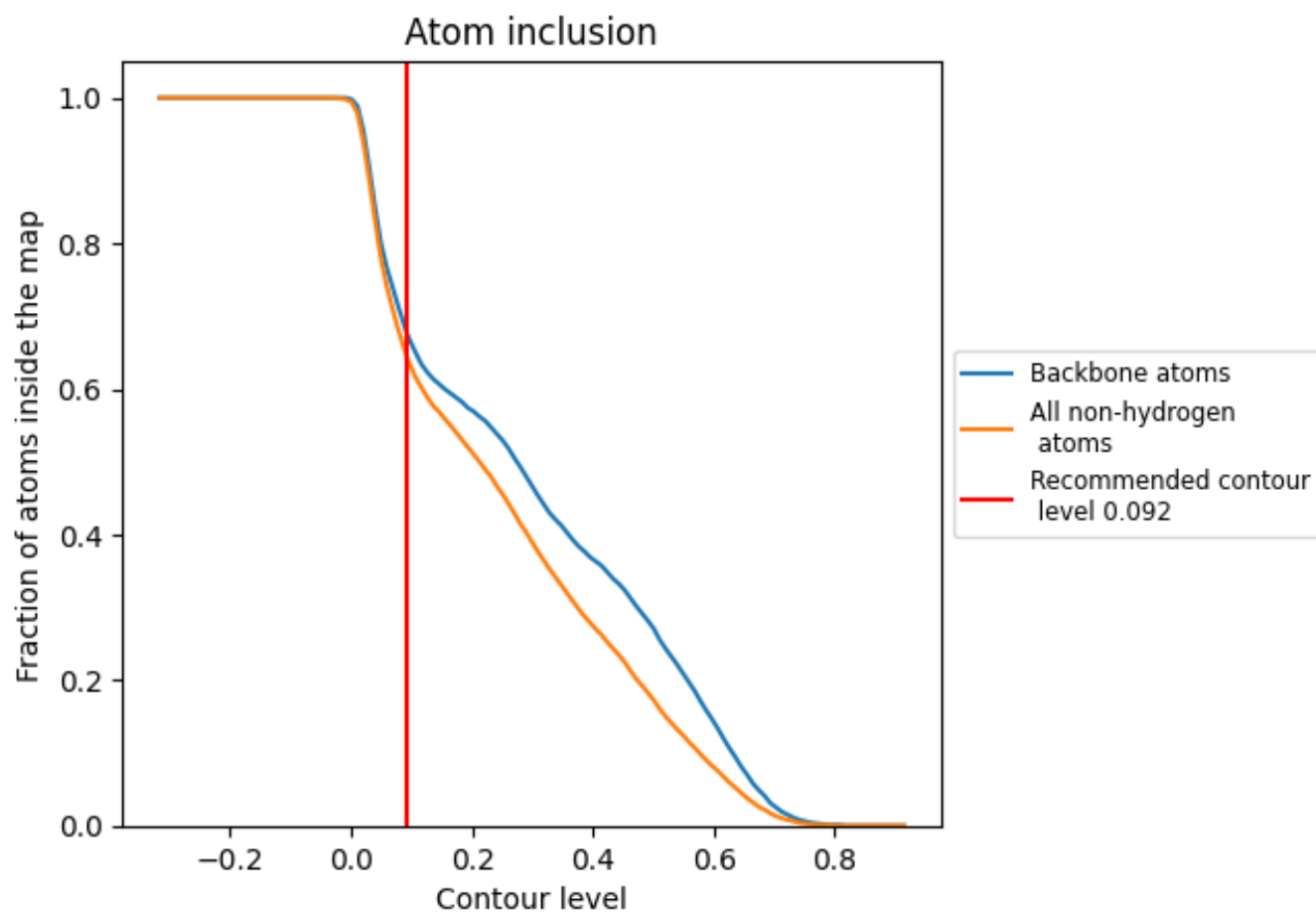
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.092).



























## 9.4 Atom inclusion [i](#)



At the recommended contour level, 68% of all backbone atoms, 64% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.092) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6440	 0.4180
A	 0.9850	 0.5500
B	 0.3410	 0.3030
C	 0.9850	 0.5510
D	 0.3400	 0.3010
E	 0.3420	 0.3010
F	 0.9850	 0.5510
G	 0.3410	 0.2980
H	 0.9850	 0.5520
I	 0.3410	 0.2980
J	 0.9840	 0.5510
K	 0.9850	 0.5500
L	 0.3400	 0.2990

